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TELEPHONE EXECUTIVES CONSIDERING TYPES OF FUTURE SERVICE

In recent weeks there have been rapid developments and many persons now express the belief that the country has at last arrived at the long-looked-for "turn." It may take some time to get around the corner, but there are hopeful indications that the turn is really in progress.

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In the telephone field an encouraging development is seen in meetings of officers and directors of state associations, and also of groups of telephone men, here and there throughout the country, for discussion of ways and means of carrying on the telephone business in the future.

The forward-thinking men of the industry realize that business and living conditions are undergoing a change. They are studying intensively events and developments and proposed developments with a view of determining just what the future will require or demand in the line of telephone service and facilities.

* * * *

Admitting the possibilities of changes in the standards of living, some telephone executives are studying suggestions for providing cheaper grades of service, based upon what might be termed "volume" consumption. Various methods, that have been proposed in the past but which did not fit into the then existing conditions, are being studied with the idea that modification might render them adaptable for future use.

For instance, it is suggested that more subscribers may be placed on a line with suitable recording equipment so as to place the individual telephones on an actual "use" basis.

Another idea is that of a meter attachment to existing telephones whereby the depositing of a coin would permit use of the telephone for a specified period of time, such as 12 hours, after which another coin would be required. This plan, it is believed, would produce revenue from many telephones which remain in place although service has been discontinued from them.

In this connection it is significant that a financial writer in a Chicago newspaper, commenting on the discontinuance of telephone service, advanced a similar argument. While admitting the fairness of telephone rates in normal times, he pointed out that some adjustment should be made that would yield some revenue from these idle instruments.

"Those idle telephones," said he, "are not producing any revenue now, and if they were in service as extensions to the number of 1,000,000, even at a dime a month, the company would be $1,200,000 a year better off than it is today. To say nothing of increasing the demand for the company's service."

* * * *

Like most laymen, of course, this writer overlooks the fact that service rates are in the hands of state utility commissioners, and any change in rates must be ratified by them. It is no offhand matter to slide rates up and down. Operating telephone men know better than newspaper critics what procedures are necessary.

The suggestion, however, comes in a friendly spirit, and is important as showing the trend of public opinion. The writer added further:

"Why not determine a depression rate of charges that will make telephones a bargain, and then start a campaign to increase their use everywhere possible? Why not grant additional extensions for only the installation charge, where the net average bill of the customer is thereby no smaller than before?

"We have been handed a lemon, but it can be made into lemonade if we have the courage to add sugar and stir.

"The telephone is one of the greatest assets of America. Let's use it!"

* * * *

Other thoughts of telephone executives as to the future are that, in some way, cheaper facilities may be secured which will provide means of communication, somewhat on the same theory that a cheap car provides transportation without any of the comforts of riding. Along this line it is pictured that extensions for main-line sets, and even intercommunicating systems, may be provided at costs that are somewhat higher than the limited service now available from a single residence line.

It might be that the extension sets and intercommunicating systems would be sold to the home-owners but maintained by the

telephone companies, a service similar to that provided by electric light companies when trouble is experienced with electrical equipment. This would also shift from the companies the burden of carrying a large investment in subscriber station equipment—a thought often brought up in the past. It might also open up a field for the sale of telephone attachments by the telephone companies.

In recent years, there has been evidence of a popular preferment for telephone equipment that fits in harmoniously with office and residence furniture and decorations. As a result of this, various types of handsets in different colors and designs have appeared.

These have become most popular and it is now generally believed that the desk set, so long a standard of telephone instruments, is rapidly becoming obsolete. In fact, some of the larger companies are commencing to junk their desk sets as fast as they are removed from service.

Recognizing the tendency for telephone sets that will harmonize with surroundings, some of the forward-thinking executives are looking for still further improvements and simplification in the subscribers' station equipment — something compact, harmonious with surroundings and yet unobtrusive, and easily accessible for use.

Naturally, in the development of telephone equipment and facilities for the future, the operating telephone men will turn to the manufacturers to design and produce it. That is one of the reasons why the Independent manufacturers should be given as much business as possible now, to carry them to the time when the corner is fully turned.

While the existing conditions in the telephone field are not entirely cheerful, telephone men, generally, are hopeful that the next few months will see a complete reversal of the monthly reports of declining number of telephones in service. They feel that the worst has been encountered and are thinking now of the telephone service which they will furnish in the days of "the new deal," rather than of the present situation which they know is gradually being worked out.

The past cannot be recalled, but the future can be prepared for—and this is the time for everyone to consider what may be required of them by their customers in the next few years. There is no standing still in life; it's either going ahead or falling behind. The industry will go ahead.

COMING CONVENTIONS.

Kansas Telephone Association, Sunflower Hotel, Abilene, April 13 and 14.

Ohio Independent Telephone Association, Deshler-Wallick Hotel, Columbus, April 18 and 19.

Indiana Telephone Association, Claypool Hotel, Indianapolis, May 10, 11.

Pennsylvania State Telephone & Traffic Association, Penn-Harris Hotel, Harrisburg, May 23, 24 and 25.

United States Independent Telephone Association, Tower Room, Hotel Stevens, Chicago, Ill., July 11, 12, 13 and 14.

Inspection and Repair of Outside Plant

Materials and Tools Required for Efficient Inspection and Repair of Outside Telephone Plant—Methods of Procedure for Obtaining Best Results in Exchange, Rural and Toll Plant—Some Practical Suggestions for the Small Plants

By B. C. Burden,

Transmission Engineer, Lincoln Telephone & Telegraph Co., Lincoln, Neb.

Spring is the season that reminds the exchange manager that the time has arrived to sharpen construction tools, replenish depleted material stocks, and get ready to repair the ravages of the winter just passed.

During the past few years many telephone companies have done little or no repair work on outside plant, having merely taken care of routine trouble. Such a policy, while satisfactory for short periods, if long continued will inevitably result in both expensive rebuilding and a lowered quality of service.

There are three excellent reasons why Independent telephone companies everywhere should now set up a program contemplating a thorough inspection and repair of outside plant during the spring and summer months.

The first reason is a psychological one: Hundreds of subscribers have been lost, not because of their inability to afford the service, but because of their lack of faith in the future. The public are regaining their lost confidence; they are alert for signs of improvement. Any activity, however slight, will be noted and pointed out by them as definite evidence of the corner being passed and that the country is again going forward.

If telephone companies start repairing their outside plant, subscribers viewing this activity will conclude that times are undoubtedly improving, otherwise the telephone company would not be so active. They will endeavor to retain their telephone service. Old subscribers who have had their telephones removed will be reminded, by this activity, that telephone service is still a part of modern life and that they are out of step with the times.

The second reason that a comprehensive inspection and repair program during the next few months will be a good policy lies in the long-established fact that preventive repair work offers considerable economy (for the small single-unit company) over the alternative plan of building a new plant, allowing it to wear itself out, and then completely replacing it.

The third reason has to do with the Independent telephone manufacturers. As has been repeatedly brought out the last few months, the supply houses have been particularly hard hit by the business slump during the past two years. Inasmuch as they stood by the Independent companies during the early days of severe competition, and have played an important, if not major, part in the development of the Independent telephone industry, it is only fair that they be given help in the way of material and tool orders at this time.

If all the companies in the country engage in an inspection and repair program as outlined in this article, and replenish depleted material stocks, the orders, though small, will do much toward tiding the manufacturers over what is now coming to be believed the "tail end" of the depression.

An inspection and repair program need not be expensive but should be comprehensive in scope. If well organized it will be beneficial from the standpoint of business as well as the extension of outside plant life and improvement of service.

Initial Considerations of Program.

Our first consideration in laying out a program contemplating an inspection and repair of outside plant is the order in which we should inspect and repair the various types of plant. We can divide our outside plant into two classes: (1) exchange and (2) rural and toll. Our pro-

gram should contemplate first the inspection and repair of the exchange plant, followed by the rural and toll plant. We have four types of plant to consider in our inspection and repair program—pole line, cable, open-wire and drop wire.

If repair work is to proceed efficiently, a light truck well equipped with materials and tools to handle repairs on any of the four classes of plant, is an absolute necessity. If a light truck is not available, then a four-wheel trailer with a flat bed and having side boards about one foot high, can be improvised from the chassis of an old automobile at a low cost. A standard drawbar with coil spring can be fastened to the back of a trouble-shooter's car for connection with the trailer.

This combination will be found just about as satisfactory as a truck for light repair work and, in some respects, more so in that the trailer can be hauled out to a location where there is considerable work and detached, leaving the car available for use of the manager in taking care of routine trouble, etc.

The inspection and repair of plant should be based on three factors:

1. Correcting any condition which would tend to shorten the life of the plant; for example, inadequate tree clearances, improper slack in cable, etc.

2. Correction of conditions interfering, or likely to interfere, with service, such as improper slack in open wire, bad drop wires, poor electrical connections, etc.

3. A general strengthening of pole lines to insure that they will withstand normal storms, and to reduce the possibility of either the public or employes being injured by weakened poles or guys.

For the average small exchange the manager and one or two helpers can carry out an inspection and repair program much more economically than can a larger crew, especially if the manager is capable and willing to do his share of the work.

The time required to completely inspect and overhaul an exchange and rural plant will depend, of course, on existing conditions. It is the writer's belief, based on actual experience, that unless a small plant is in a deplorable condition, it can be completely covered in three or four months by a manager and helper, without interfering with the regular duties of the exchange manager.

While an overhaul will not leave the plant in the same condition as a complete rebuild, nevertheless it will work wonders in the way of improved service, and the cost (contrary to the argument of those who advocate wholesale rebuilding) will be low.

Preparations for Inspection and Repair.

Prior to starting the actual inspection and repair work, materials on hand should be checked and needed material ordered so that all repair work can be made in a standard manner. The accompanying list suggests those items which will be needed to do first-class repair work.

Equally important to having proper materials available is the need for adequate tools. Tools represent such a small percentage of the total investment of a telephone plant that it is surprising to find companies which struggle along with inadequate tools. This not only slows up work but usually results in poorly-constructed plant.

The accompanying list of tools is suggested for the small and medium size exchange for use in connection with outside work. Check your tools against this list.

Miscellaneous small tools such as files, small screw drivers, canvas bucket, etc., should be included. Each lineman should have a complete lineman's kit consisting of climbers, safety and belt, pliers, etc.

List of Materials Needed for Outside Plant Repairs.

Pole line Hardware	Lag screws, square washers, crossarm bolts, double-arming bolts, stubbing bolts, carriage bolts, machine bolts, drop brackets (pole and house type), cable clamps, guy strain plates, nails, (size 30-D and 60-D for wood brackets).
Anchors	Patent, of any approved type; galvanized guy rods.
Crossarms	Four-pin, six-pin, and ten-pin; special type arms for joint-use poles. Guard arms for joint poles with clearances less than six feet.
Pole brackets and pins	Wood pole brackets (1½ ins. by 2 ins. by 12 ins). Wood pins (1¼ ins. by 8 ins.).
Insulators	Single-groove, green glass for exchange and rural; deep groove double-petticoat for toll. Transposition glass (two-piece), two-groove porcelain (twisted pair drop wire), single or double square-groove porcelain (parallel drop wire).
Tape	Friction and rubber for drop-wire splicing and temporary cable sheath repairs.
Wire	No. 109 BB iron, for exchange, rural, and toll line repair. No. 104 copper, for toll line repair. Drop wire, either parallel or twisted pair. Bridle wire for use in terminals.
Strand	6,000-lb. for small cable guying, and one or two-arm leads. For light farm leads No. 6 or No. 9 A. W. G. BB galvanized iron.
Sleeves	Small sleeves for drop-wire splicing, large sleeves for copper and iron wire.
Acid core solder	For use in soldering drop and bridle wires to line wires.
Test connectors	For use in connecting bridle wires to line wires at test points.
Poles	New poles should be used to replace junction and terminal poles which are in bad condition.

List of Tools Needed for Outside Work.

Tool.	Purpose.
Hole digging shovel, 8-foot	For pole hole digging.
Spoon shovel	For removing dirt from deep holes.
Round-point, straight-handle shovel	For use in handling loose dirt.
Earth auger, 8 inches	For patent anchor holes.
Pike poles	For erecting heavy poles.
Wooden tamp with iron shoe	For tamping dirt around poles.
Raising fork	For use in erecting heavy poles.
Lag-screw wrench	For use on pole line hardware.
Hand axe	For tree-trimming and pole work.
Regular axe	For tree-trimming and pole work.
Set of 6-inch three-sheave blocks with ¾-inch rope, or chain hoist type	For pulling slack out of messenger and tightening down guys.
Two sets of light blocks with wire grips	For pulling slack in line wire.
Framing chisel, 2-inch	For gaining poles.
Carpenter's draw knife	For stripping poles.
One 40-foot ½-inch Manila hand line	For work on poles.
Carpenter's claw hammer	For general use.
Steel measuring tape, 100-foot	For general use.
Hand saw	For framing and gaining.
Carpenter's ratchet brace	For general work.
One kit of wood bits with several extra bits, sizes ¾-inch by 16 inches, 21/32-inch by 18 inches	For pole work.
Payout reel	For wire stringing.
Takeup reel	For removing old wire.
Tree trimmer	For removing limbs from trees from the ground.
Pair of heavy Haven's grips for strand	For pulling strand
One pair ½-inch capacity bolt cutters	For cutting strand and rusty bolts.
Two pairs of sleeve twisting clamps	For twisting iron or copper sleeves.
Small masonry drills	For use in fastening drop brackets or cables to brick or concrete walls.
One heavy screw driver	For knob screws.
One light extension ladder, 28-foot	To be carried only when repairing cable.
One 12-foot light ladder	For work around buildings.
One ohmmeter	For checking resistance of line wire and telephones.
One test telephone set	For test purposes.
One first-aid kit	For treating skin cuts and abrasions.

Next to having an adequate set of tools the most important thing is to keep them in good condition. A few minutes spent in sharpening axes, wood bits, shovels, etc., before going out on the job will save many

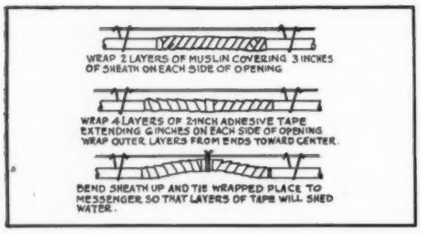

WRAP 2 LAYERS OF MUSLIN COVERING 3 INCHES OF SHEATH ON EACH SIDE OF OPENING
WRAP 4 LAYERS OF 2-INCH ADHESIVE TAPE EXTENDING 6 INCHES ON EACH SIDE OF OPENING. WRAP OUTER LAYERS FROM ENDS TOWARD CENTER.
BEND SHEATH UP AND TIE WRAPPED PLACE TO MESSENGER SO THAT LAYERS OF TAPE WILL SHED WATER.

Fig. 1. Tape Repair to Lead Sheath Cable.

hours of linemen's time and will result in better work.

The tools and material should be arranged in compartments in the truck or trailer so that they will be readily accessible. An inspection of a large telephone construction truck will suggest to the small company manager how to fix up a convenient arrangement.

Let us next consider what methods will produce the best results in our inspection and repair of the exchange plant.

Inspection and Repair of Plant.

The city plant should be covered first. Starting from the office the plant in each block should be inspected and the necessary repairs made. Where a major replacement, such as a heavily-loaded terminal pole, must be made, and the work involved will require a larger crew, a note of it should be made. After the city plant is completely gone over and all the minor repairs completed, then a larger crew can be obtained to finish the deferred repair work.

In making the block-to-block inspection, the first consideration is the poles. Poles can be tested for strength by pushing on them with a pike pole. Any pole which will push over readily should be either reset or replaced. Poles can be reset in most cases except where they fail to provide adequate clearance of wires over roadways, or where the upper part of the pole is in such condition as to make it hazardous to climb. Junction and terminal poles which are broken off should be replaced with new, treated poles in preference to resetting.

Brush Treatment of Reset Poles.

There is a difference of opinion among construction people and plant engineers regarding the merit of brush-treating old poles. It is generally agreed that the brush treatment of new, untreated cedar poles is of but little benefit, due to the fact that the wood fibers are in such condition that they do not absorb cold creosote applied with a brush.

It is the opinion of many, including the writer, that the brush treatment of *old* cedar poles, which have been in service for a number of years, is well worth while and that a life extension of from three to ten years is obtained where the treatment is properly applied. The greater life extension obtained by brush-treating methods on old poles as compared to new poles is attributed to the fact that the sapwood of an old cedar pole is quite porous and will absorb sufficient creosote to make the treatment effective.

The relative economy of brush treatment vs. pole replacement depends largely upon the life extension that can be obtained as against the cost of the treatment and the more frequent handling of poles. For the small company where labor is relatively cheap, the brush treatment is recommended for reset poles.

Pole Cable and Open Wire Repairs.

Poles which are out of line or loose in the hole should be straightened and tamped. After the poles in a block are worked over, then attention should be given to the pole attachments, such as crossarms, brackets, cable supports, etc.

In general, crossarms need be replaced only where the arm is obviously rotten. Replacing broken and rotted pins, and nailing in loose pins will usually put an old arm in shape for a number of years of additional service.

Through bolts should be tightened and crossarm braces relagged where loose on the pole. After the arm is worked over, the ties should be loosened or removed entirely so that slack may be pulled from the end of the lead.

On pole lines, carrying cable, the cable support should be examined and tightened where necessary. The cable sheath at the pole and several feet on each side should be examined for evidences of crystallization and ring cuts.

If places likely to cause trouble are found, the rings should be removed and a temporary repair made by tightly wrapping two layers of ordinary friction tape in a reverse direction over the bad area and about three inches on each side as shown in Fig. 1. In some cases it may be necessary to remove the sheath and boil out the insulation. The tape should be painted with a coat of asphaltic paint. The rings should then be replaced in their proper position.

The location and exact nature of the cable sheath trouble should be marked on the cable map for future use in making permanent repairs and for reference purposes in case of cable trouble. Such a repair will maintain the sheath waterproof for several years.

Cable terminal poles and open-wire junction poles should be given special attention and such items as cable leg straps, jumper wire connections to open wires and to cable terminals, and terminal mountings inspected where necessary. Dead jumpers should be removed and all jumper wires dressed neatly in place.

Drop brackets and drop wire ties should be inspected, for many cases of trouble originate in tie wires cutting through the insulation of the drop. (TELEPHONY's Engineering Data sheets in this issue show the correct tying methods to employ for both twisted pair and parallel drop wire.)

The use of standard ties will do much to remedy trouble from short-circuits at drop-wire supports. The house end of each drop should be examined to insure the drop bracket is securely fastened and

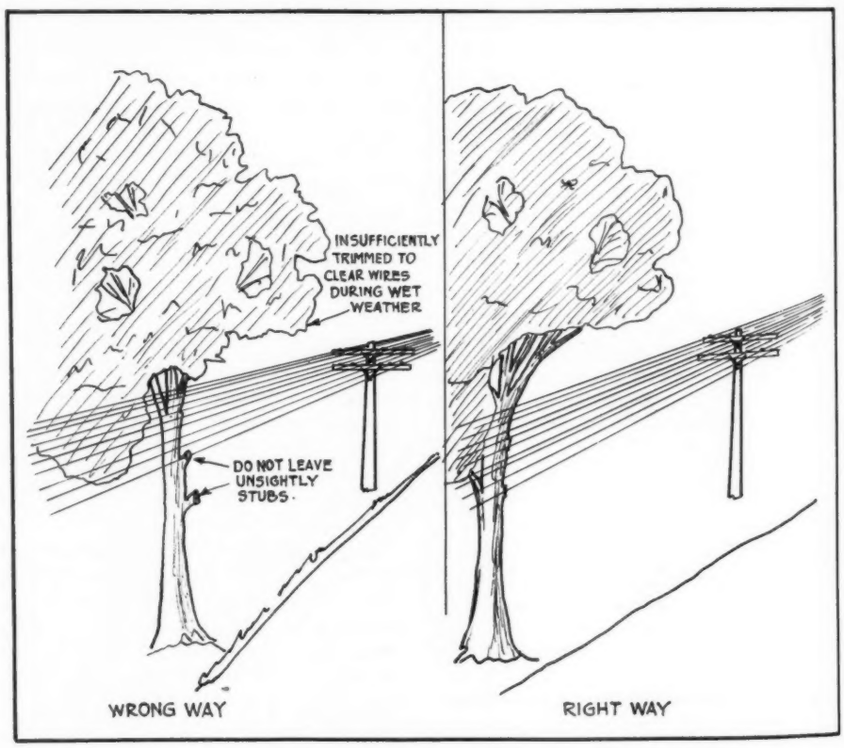


Fig. 2. Tree-Trimming Methods, Wrong and Right Ways.

that the tie is properly made and not likely to cause trouble.

The last item to check in each block is tree clearance. All tree limbs should be removed so as to avoid any possibility of contact with the cable, drop, or open wires. Limbs should be cut off in such a manner as to not leave unsightly stubs, Fig. 2. In locations where limbs have been in contact with the cable or messenger for some time, it is always advisable to examine the sheath for evidences of crystallization, due to the vibration of the cable.

For examining cable out in the span, an extension ladder (28-foot) is most convenient and will save considerable time as compared to a cable car. Fig. 3 illustrates how a ladder may be used in most locations where the cable is on 25-foot or shorter poles.

Thought should be given to the matter of adequate clearances from the current-carrying wires of power companies, and standard clearances should be provided in all cases. Standard clearances are as follows:

VERTICAL CLEARANCES BETWEEN POWER AND TELEPHONE WIRES.

Power Voltage.	Clearance.
0— 750	2 feet*
750— 7,500	4 feet
7,500—50,000	6 feet

*If not within 6 feet of pole.

STANDARD GROUND CLEARANCE OF TELEPHONE WIRES.

27 feet over main railroad tracks (measure from top of rail).
18 feet over streets, alleys and highways.
10 feet over private driveways.

The matter of standard clearance over highways, alleys, private driveways, etc., must be checked as the cost of providing proper clearance is much less than a single damage suit.

If considerable pole resetting work is encountered, additional labor can be secured at the present time at a very low cost. In many cases, individuals capable and willing to work out their telephone rent for several months, will be found.

After the inspection and repair of the town plant is complete, the inspection of the rural and toll plant should be started.

The inspection and repair procedure will be much the same for the rural plant as for the exchange. The principal difference is the necessity for checking the resistance of the line wires and the inspection and repair of the station equipment of each rural subscriber.

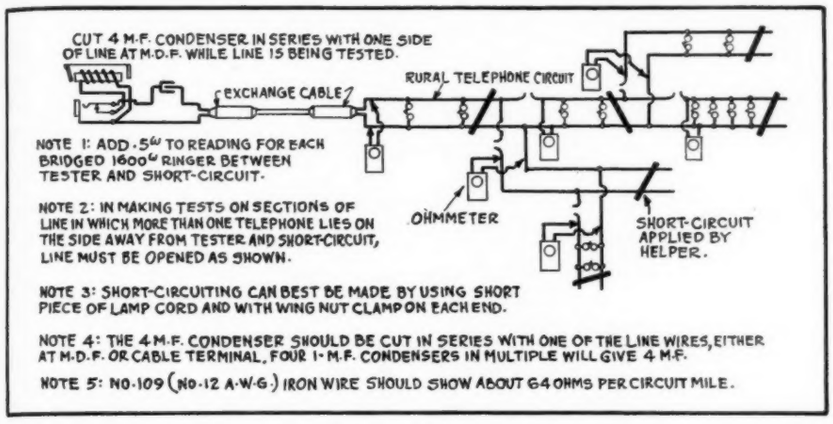

CUT 4 M.F. CONDENSER IN SERIES WITH ONE SIDE OF LINE AT M.D.F. WHILE LINE IS BEING TESTED.
EXCHANGE CABLE
RURAL TELEPHONE CIRCUIT
NOTE 1: ADD .5Ω TO READING FOR EACH BRIDGED 1600Ω RINGER BETWEEN TESTER AND SHORT-CIRCUIT.
NOTE 2: IN MAKING TESTS ON SECTIONS OF LINE IN WHICH MORE THAN ONE TELEPHONE LIES ON THE SIDE AWAY FROM TESTER AND SHORT-CIRCUIT, LINE MUST BE OPENED AS SHOWN.
OHMMETER
SHORT-CIRCUIT APPLIED BY HELPER.
NOTE 3: SHORT-CIRCUITING CAN BEST BE MADE BY USING SHORT PIECE OF LAMP CORD AND WITH WING NUT CLAMP ON EACH END.
NOTE 4: THE 4 M.F. CONDENSER SHOULD BE CUT IN SERIES WITH ONE OF THE LINE WIRES, EITHER AT M.D.F. OR CABLE TERMINAL. FOUR 1-M.F. CONDENSERS IN MULTIPLE WILL GIVE 4 M.F.
NOTE 5: NO. 109 (NO. 12 A.W.G.) IRON WIRE SHOULD SHOW ABOUT 64 OHMS PER CIRCUIT MILE.

Fig. 4. Checking Rural Line Wire Resistance.

Poles can be reset with much smaller ground clearances in the country than in town. Care must be taken, however, to provide adequate clearance at points of entrance to farmers' fields, above driveways, and highways. The shorter the pole, the less liable it is to go over during a storm.

Inasmuch as ten-foot farm lines have been built by several of the larger companies on an experimental basis, the small Independent company should not feel reluctant to reset old poles so as to give ground clearance of only 8 to 12 feet.

Poles on each side of main highway crossings should be of adequate height and preferably in excellent condition. Where it is desired to strengthen a line by adding a few new poles these should, of course, be treated poles and placed at corners and at points in the line where the greatest storm exposure exists.

The slack should be pulled out of the line wires. Care should be taken to pull the wires just tight enough to prevent crosses and short-circuits, and not to pull them so tight that they look "nice and straight," for they are quite liable to give much more trouble from breakage in the winter time than they will from short-circuits and crosses if allowed to be reasonably slack.

Transmission Check of Line Wire.

The resistance of line wires should be checked each mile, using a pocket ohmmeter and measuring to a ground placed at the end of each mile (grounded lines), or by measuring the series resistance of the two wires of a circuit to a short-circuit, in the case of metallic lines. In using the ground as one side of the circuit, it must be kept in mind that the resistance of the two grounds will probably be from 50 to 200 ohms, and that these resistances will add to the normal resistance of the line wires.

Where there are several ground return lines on the same lead, they would best be measured on a metallic basis and the result divided by two to get the approximate resistance of each wire.

Splices of sufficiently high resistance to cause transmission trouble will be readily located by this resistance check. If any mile shows excessively high resistance, it will, of course, be necessary to make additional measurements within the mile to locate the splice or splices causing the trouble. Fig. 4 illustrates the method of measuring line wire resistance.

All hand splices should be cut out and replaced with sleeves, except where the wire is corroded so badly as to make a sleeve impractical, then the hand splice should be scraped and soldered with acid core solder. Wire which is badly corroded should be replaced with new wire if the expense can be justified.

Drop wires into farmhouses should be of the twisted pair variety in preference to terminating open wires directly on the house as was once the practice.

Rural Station Inspection.

The rural station installation should be inspected and repairs made. The following items require attention:

Test the batteries, oil the generator and fasten hold-down screws, replace worn receiver cords, check the armature and gong adjustment of the ringer, check receiver diaphragm condition, replace bad shells and mouthpieces, adjust the hook switch, check transmission with operator, replace poor transmitters, dress inside wiring in place, and check lightning arrester for dirty or missing carbons, check wiring to ground rod and cleat it in place.

A station inspection and adjustment will not require much over ten minutes. In addition to improving service, it may save a long trip out into the country on a trouble case.

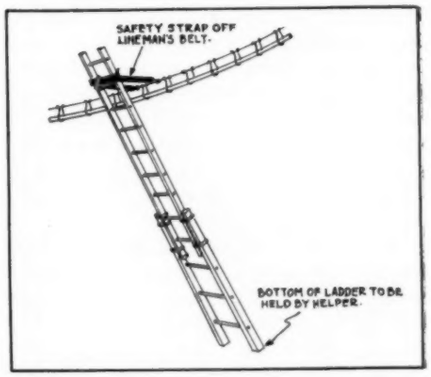


Fig. 3. Use of Extension Ladder in Making Temporary Repairs to Aerial Cable.

The inspection-repair procedure discussed in this article was followed for several years in an exchange of about 800 stations by the writer. It is entirely practical from the standpoint of a manager and one helper

actually being able to completely inspect and repair the entire exchange and rural plant including rural stations in a few months out of each year.

The results were very satisfactory from the standpoint of improved service, reduced trouble calls, and economy resulting from the new lease on life given an old plant. It also proved exceptionally valuable from the standpoint of subscriber relations.

The plan puts the manager in contact with more subscribers and prospective subscribers in a few months, than he would have in a year by sitting in his office. The average farmer is much more reasonable and agreeable to visit with or to sell if you meet him along a fence line in the guise of a laboring man, rather than approach him in the role of manager-salesman leading (as he sees it) a life of roses, while he, a son of the soil, must labor long and arduously for uncertain compensation.

Features of Kansas Convention in Abilene Next Week, April 13-14.

The Kansas Telephone Association will meet in Abilene Thursday and Friday, April 13 and 14, and all advance notices point to a banner meeting at the Sunflower Hotel. The two-day schedule is filled with good talks, live round-table discussions and plenty of time out for recreation.

A special assembly has been called for all golfing telephone men. Matchmakers and "hot shots" of the United Telephone Co. will be stationed at the Abilene Country Club to give the visiting club wielders as much competition as possible. Convention visitors are urged to come a day early and test out the course in advance of the meeting.

Speakers this year include H. F. McCulla, assistant general commercal superintendent of the Lincoln Telephone & Telegraph Co., Lincoln, Neb; Will Green, chief engineer of the United Telephone Co., Abilene; Samuel Tucker, president of the Kansas association, Pleasanton, and others.

The round table discussions are on "hot" subjects including "collections," "saving disconnects," "meeting decreased revenues with operating economies," "campaigns" and any other topics that visitors may desire put up for opinions.

At 6:30 p. m. on April 13 there will be a banquet followed by a theater party which will be given by the Southwestern Bell and the United telephone companies.

New Officers of Consolidated Cedar Pole Associations.

The first annual convention of the Western Red Cedar Association and the Northern White Cedar Associaton, since their consolidation, was concluded at Minneapolis, Minn., on March 24. The officers were elected as follows:

President, W. T. Kuntze, of Spokane, Wash., National Pole & Treating Co.; vice-president, Dawson Brande, of Minneapolis, Minn., B. J. Carney & Co.; treasurer, Geo. B. Partridge, of Minneapolis, T. M. Partridge Lumber Co.; secretary, N. E. Boucher, of Minneapolis.

The directors are: R. C. Clute, of St. Paul, Minn., Weyerhaeuser Sales Co.; Beecher Hitchcock, of Sandpoint, Idaho, Schaefer-Hitchcock Co.; J. E. Gerich, of Milwaukee, Wis., MacGillis & Gibbs Co.; G. H. Ramsey, of Minneapolis, Minn., National Pole & Treating Co.

Annual Meeting of American T. & T. Co. Stockholders.

The annual meeting of stockholders of the American Telephone & Telegraph Co. was held in New York City on March 28. Of the 700,000 odd stockholders entitled to attend the annual meeting only about 400 were present. They voted 10,653,561 shares, which was a working majority of the 18,662,275 shares outstanding. All of the directors were reelected.

A suggestion that the company consider the advisibility of placing a woman on the board of directors was made to President Gifford. A Canadian woman stockholder brought out the idea, recalling the statement made by Mr. Gifford in his annual report on February 10 that more than half the 700,851 stockholders are women.

The proposal was made after the stockholders by a practically unanimous vote had reelected the 19 directors. Mr. Gifford thanked the stockholder for the suggestion, which he said was interesting, but which cannot be acted upon for another year unless some vacancy is created in the meantime.

There was no discussion regarding the future dividend policy of the company. The directors meet the middle of May to act on the next dividend.

At the organization meeting of the board of directors following the stockholders' meeting all the officers were reelected, with the exception of E. C. McAllister, one of the assistant treasurers, who has recently retired on account of reaching the age limit.

What Operators Want to Know

Depression Is Being Rapidly Superseded by Transition—Varied Inventions Have Been Perfected in the Last Few Years—Opportunities Still in America for the Seeking—Series No. 93

By Mrs. Mayme Workman,
Traffic Supervisor, Illinois Telephone Association, Springfield, Ill.

The word "depression" is as familiar to us as our cognomen. We find it on the tongues of old and young, rich and poor alike. It has been used by speakers and writers everywhere. But I believe the time is not far distant when it will be as passe as "23 skiddoo." It is a gloomy word, conveying a feeling of hopelessness and despair and it will be a time of rejoicing for us all when it has been cast in the discard.

Today, we frequently hear the word "transition." This word conveys the idea of hope and suggests changing conditions which will bring greater comfort and more general contentment. It is a pleasant word with which to conjure in this changing hour of unrest. It is a timely signal to the thinker and a beacon light of hope to the unemployed and the under-privileged.

There have been many inventions during this period of depression and change that are termed, "depression inventions." Dr. H. C. Parmelee of the McGraw-Hill publications gave the following list, as coming under this heading, to the science forum of the New York Electrical Society:

Infra-red photography; non-run hosiery; metallized wood; green cellulose wrapping; powdered metals; plastics; the stroboscope; electric-eye engraver; aluminum foil insulation; aluminum colors; glass blackboards; the pancake motor; Rochelle salts microphone; cotton houses; glass bricks; dry ice box; fabric-coated metals; sodium vapor lighting, and reading machine for the blind.

Dr. Parmelee explained that the inventions did not originate solely as the result of the depression but that everyone of them is the result of research that began within the last few years and that taken together they have the potentiality of helping to overcome hard times.

So we find the old saying is still true: "It's an ill wind that blows no good." Our America is still a land of hope and promise with a world of opportunities for those who seek them.

Questions from Illinois Operators.

1. Should independent messenger rates be higher than person-to-person rates?
2. Is "UN" a chargeable report?
3. You have a call to a given point and the called party is out; you leave word. The called party calls back but does not tell the operator he was called but places a call to the party who called him. Is the report charge covered on the first call?
4. When you receive a collect ticket from some other station do you ask your party if it is O. K. and give the long distance operator the report or ring the party and let her get her own report?
5. If a station-to-station call is placed during the day and the call is not completed until after 8:30 o'clock at night, does the call take the day rate or the night rate?

For answers to these questions from real Illinois operators, please turn to page 18.

Renovating Central Office Equipment

Central Office Equipment Should Be Given Careful Check-up at Regular Intervals, Adjustments Made and the Defective Parts Replaced—This General Reconditioning Includes: Switchboard, Power Equipment and Main Frame

By Ray Blain

If maximum life and service is expected of central office equipment, it should be given a careful check-up at regular intervals, adjustments made and defective parts replaced. This periodic reconditioning will prove well worthwhile, even during these times of depression, as the spending of a small sum of money will mean a much larger amount saved later. This general reconditioning of central office equipment will be considered in three parts—switchboard, power equipment and main frame—each treated separately.

The Switchboard.

The first work to be done on a switchboard should be to clean it thoroughly both inside and out. The outside woodwork should be polished, using wax or other approved furniture polish. If a tarpaulin cover is provided for use in case of fire, it should be cleaned and refolded. One of the telephone type vacuum cleaners, if available, will be quite useful on this cleaning.

Line jacks should all be gauged to make sure that they have not worn so as to cause cutout trouble. If a jack gauge is not available, one can be purchased at small cost from the manufacturer of your switchboard. Where only a few jacks of a strip are worn, it may be possible to change telephone numbers, and cross reference to avoid changing the entire strip. Changing of numbers is never advisable if it can possibly be avoided; if three or four jacks are badly worn, then the changing of the strip will probably be justified.

Contrary to general belief, the changing of jack strips is not a difficult task. Individual jack sleeves can be replaced but this requires special tools; and unless one has had previous experience on such work, it is a rather difficult operation and the mounting strip may be broken.

Plugs should all be gauged and any found excessively worn should be replaced. Plugs should also be cleaned frequently with an approved polish. Plug seats cost very little and any found worn should be replaced. Cords should be tested and any found noisy, either replaced or rebutted. Rebutting of switchboard cords is really a simple task but is generally dreaded by most of us and delayed just as long as possible. Switchboard cords should really never be neglected, for they can cause no end of misery in false trouble reports on station equipment.

All relays should be cleaned and adjustments checked. Contacts should be inspected to make sure that they are clean and line up properly so as to make positive contact. Wiring and cable forms should be straightened up and connections resoldered if necessary. Frayed insulation on the skinners should be rolled down with shellac. If forms have been previously coated with shellac, they may be given another coat but the use of shellac on the body of the cable form is generally not recommended.

All keys should be checked over and given the same attention as recommended for relays. They should also be tested for noise and cutout trouble, with the levers crowded to either side. The plungers should be cleaned on all keys to prevent sticking. Fuse and night alarm circuits should be inspected and tested to insure their proper operation.

The care of operators' headsets is a very important item which is too often neglected. At least one spare headset should always be on hand in every switchboard operating room. The plugs and cords of the headsets should be tested. If there is any doubt of their serviceability, they should be changed. Transmitters and receivers should also be tested to make sure they are in good condition and operating efficiently.

Power Equipment.

The storage battery is a very important part of any telephone exchange and should always receive the best of care. The cells should be thoroughly cleaned on the outside and all connections inspected and overhauled if necessary. The new sealed type storage battery is easy to keep clean and is considered a big improvement over the old open cell, glass jar variety.

Cells should be watched for an accumulation of sediment. If this piles up too rapidly, the charging method should be verified and corrected or the life of the plates may be considerably shortened. Many batteries are ruined in telephone service due to excessive charging.

Motor-generator charging sets and ringing machines should be thoroughly cleaned and placed in good condition. Worn bearings can be easily replaced and at a small cost. Armatures can be removed and rough commutators turned down by any electrical works or machine shop. This, in most cases, makes them almost as good as new. Oil rings should be kept in good condition, for correct oiling is always important. All meters should be checked for accuracy with an approved standard.

Electron tube type rectifiers cause very little trouble if kept fused properly. Fuses should all be checked for proper capacities and spare one conveniently located. One set of spare bulbs should also be provided.

Worn contacts on ringing vibrators should be replaced, as rough, pitted contacts are about all that ever cause trouble on this type apparatus. As they are cheap, they should never be neglected. A complete set of spare contacts should be kept on hand.

The battery rack or inside of the battery cabinet should be repainted with acid-proof paint if necessary. Iron work can be touched up with a little paint, which makes a big improvement in the appearance of any telephone exchange. Aluminum paint is now considered the thing, but if the ironwork was originally painted black it is a most difficult task to change over to aluminum—I know; I tried it, once.

Main Frame and Protectors.

Main frames and protectors cause entirely too much trouble in some exchanges; and this trouble can be materially reduced by a small amount of work in most cases. Old, rough protector blocks and edge-burned micas should be discarded, for they are of no earthly use except to cause trouble. Many times it proves a good investment to equip all protectors on a main frame with new type protector blocks which do not require the mica dialectric. All protector ground connections should be tested to make sure they are good.

Terminal blocks should be tightened firmly in place and inspected to make sure there is no leakage between terminals caused by dust, drops of solder, small pieces of wire or other causes.

Jumpers should be checked and new connections made and resoldered if there is any doubt of their being electrically sound. Wire is cheap and all jumpers should be of the approved type, flameproof, without splices in them. The changing of a few jumpers does not mean much from a cost standpoint but may clear many cases of bothersome chronic trouble.

When an exchange is renovated in this manner, the possibility of excessive central office trouble for some time will not be great and the service will be improved.

Some of the work enumerated here may be considered necessary but too difficult for the regular force to accomplish properly. In that case, a man, well-qualified in such work, can be hired for a few days at a nominal cost. In addition to making the general overhaul, he can clear up all accumulated trouble.

Many good telephone men are now out of work all over the country and would welcome a few days' employment.

Equipment Life and Salvage Problems

Data Concerning Major Telephone Plant Elements and Composite Rates of Depreciation Used by New England Telephone & Telegraph Co. Presented at Hearing Before Massachusetts Commission—Effect of Depression—Salvage

An exhaustive presentation of plant depreciation and salvage problems absorbed the attention of the Massachusetts commission when the pending rate case of the New England Telephone & Telegraph Co. was resumed at Boston, March 28. Chief Engineer Geo. K. Manson of the company was on the stand for the entire day under direct examination, and explained data upon the service life of the major plant elements and composite rates of depreciation allowed.

The witness also introduced comments of interest regarding the effect of the business depression in lengthening the life of equipment. For the entire New England property the rate was 4.35 per cent from 1928 to 1933, and since January 1 it has been 4 per cent per annum. The principal cause of this change is the longer life of many of the equipment components due to reduced growth of lines and stations and lessened use of service during the past two years. Station equipment, however, has displayed shorter life and reduced salvage value, attributable in part to the increasing use of handsets.

Mr. Manson said it is a part of his duty as chief engineer to determine depreciation rates. The general auditor applies 1/12th of the annual rate each month to the average plant in service during that month, taking plant class by class as ordered by the Interstate Commerce Commission in 1931. The composite result as a percentage fluctuates with the balance of different classes.

The major cause of the reduction just noted is the lessened effect of the inadequacy factor brought about by the growth of lines, stations and service, "filling" the plant in normal times so that it cannot take care of such growth. Loss of stations and more recently loss of lines means that plant lasts longer than normally, especially central office equipment, cable and toll service. Switchboards are considerably affected, but poles and conduits less so.

Breakdown of Plant Service Life.

The witness introduced a table of service lives and depreciation rates effective on the New England system January 1, 1933, and covering 27 major plant items.

Exchange and toll rights of way have been consolidated by order of the Interstate commission. Many highway rights of way outlast the life of the original pole. The previous depreciation allowance for rights of way was 2.5 per cent for exchanges and 1.7 per cent for toll. It is estimated that the former will last 40 years and the latter 60. The average service life adopted is 50 years and there is no salvage.

Exchange building depreciation is studied by determining the life of the average dollar invested from original construction to retirement. Before 1933, depreciation rates were studied on the basis of 1928 conditions, and this gave an average life of manual exchange buildings of 33.2 years. The average building dollar life was 23.2 years by reason of the additions occurring after the original construction. The ratio of average dollar life to gross building life was 70 per cent.

A check at the start of 1931 indicated a gross life of 34 years, an average dollar life of 21.5 years and 63 per cent ratio. On account of the depression the company has adopted a dollar life of 28 years, and this at 70 per cent corresponds to a gross building life of 40 years. The average age of the manual exchange buildings of the company on January 1 was 24.5 years. It is practically useless at present to estimate when the existing plant will be filled.

Too few exchange buildings have been sold in New England to give an accurate idea of their salvage value, but this is estimated at 20 per cent for manual exchange buildings. Those standing on land acquired are generally a total loss to the company. Old telephone buildings are of little value as residences or stores, but occasionally are suitable for light manufacturing or warehousing. The depreciation allowance for central office buildings is 2.9 per cent.

The gross life of dial exchange buildings is estimated at 60 years, but when weighted by plant additions and interim retirements the average dollar life is 50 years. The ratio of average dollar to gross building life is about 80 per cent compared with 63 to 70 per cent for manual buildings. Salvage is estimated at a possible 10 per cent and the depreciation is 1.8 per cent.

Non-exchange buildings include the main office at 50 Oliver street and the office at 245 State street, Boston, besides the Watertown service building. The first two have a common estimated retirement date, 1943. The Oliver street office was built in 1911 and State street purchased in 1923. The Watertown service building, a fine reinforced concrete structure, was built and equipped in 1931 and has been set for retirement in 1991.

The estimated effect of subsequent additions and retirements at Watertown brings

Items.	Service Life in Years.	Per Cent Gross Salvage.	Per Cent Cost of Removal.	Per Cent Net Salvage.	Per Cent Annual Depreciation. Component Rates.	Composite Rates.
Right of way, exchange	50	..	..	0	2.0	2.00
Right of way, toll						
Buildings, manual exchange	28	..	..	20	2.9	2.20
Buildings, dial exchange	50	..	..	10	1.8	
Buildings, non-exchange	26	..	..	48	2.0	
Central office equipment, manual	16	7	3	4	6.0	5 06
Central office equipment, dial	23	8	3	5	4.1	
Station apparatus	5.5	..	..	62	7.0	7.00
Private branch exchanges	10	34	4	30	7.0	7.00
Booths and special fittings	11	56	4	52	4.4	4.40
Pole lines, exchange	20	10	20	—10	5.5	5.32
Pole lines, toll	23	8	18	—10	4.8	
Cable, exchange aerial	22	20	12	8	4.2	3.46
Cable, exchange underground	28	22	10	12	3.1	
Cable, exchange submarine	15	5	5	0	6.7	
Cable, toll aerial	28	18	8	10	3.2	
Cable, toll underground	33	22	7	15	2.6	
Cable, toll submarine	20	5	5	0	5.0	
Aerial wire, exchange	17	2	27	—25	7.4	5.12
Aerial wire, toll iron	18	2	17	—15	6.4	
Aerial wire, toll copper	25	25	10	15	3.4	
Underground conduit, exchange	60	..	..	0	1.7	1.65
Underground conduit, toll	75	..	..	0	1.3	
Furniture and office equipment	15	..	..	10	6.0	6.00
For clearing accounts—						
Vehicles and other work equipment:						
Vehicles	6	..	..	10	15.0	13.50
Tools	7	..	..	30	10.0	

Service Lives, Salvage, and Depreciation Rates of New England Telephone & Telegraph Co., Entire Company, in Effect January 1, 1933.

the dollar life there to 38 years. The estimated salvage is 75 per cent for Oliver street, 50 for State street and 20 for Watertown. The composite depreciation rate is 2.2 per cent.

Mr. Manson said it is unnecessary to carry estimates of the effect of additions through to the retirement date of central office manual equipment, because the relation of the realized life to the date of the study can be expressed in relation to the gross life. Uniform results are found on analyzing a number of manual offices.

The relation between the age of the initial installation and the average realized life was plotted for 63 offices. The average was about 10.5 years, and there was a decided tapering off in realized life after 20 years' use of the initial installation. To allow for current conditions the company assumes an average life of 16 years for manual central office equipment. The estimated life of dial equipment (c. o.) averages 23 years, and its depreciation rate is 4.1 per cent against 6 per cent for manual.

Station apparatus is considered later in this report.

Pole Life Studied by Actuarial Methods.

The so-called mortality or actuarial method, Mr. Manson said, is employed in studying pole-life expectancy. The number of poles removed in different three-year periods of bands and their ages are studied. A year's overlap is allowed between bands. Insurance formulae give indications of the average life of poles remaining. For the period ending 1931 the entire pole property of the company was included in the studies. Before this data were available for only one-third of the poles.

The indicated average service life of exchange poles was 21 years before 1928, but it was 16 years in each of the two succeeding bands. Poles are dealt with on the unit basis instead of a cost basis, in order to avoid price adjustments. Allowances have been made for crossarms and guys in getting at final life estimates. The estimated service life is now 20 years for exchange poles and 23 years for toll poles.

The use of creosoted Southern pine poles or tank-treated chestnut or cedar has not been going on long enough to make a perceptible difference in indicating average service life derived from actuarial tables, but some allowances are made in estimating for this. If left to themselves, treated pine poles will probably last 35 years. A trend toward longer life will be apparent in due course, and the slowing up of business has had a tendency to lengthen exchange pole life.

The estimated life of exchange poles has been pushed as far as is safe, the witness asserted. This is now set at 20 years to allow for the depression; and until the effects of treating poles are known, it will be unsafe to extend life figures. Incidentally Mr. Manson pointed out that it is false economy to install new cable on old poles, and for this reason pole replacement may at times be justified before useful life has expired.

Because the cost of removal is so high, the net salvage on exchange poles is —10 per cent. During the past five years this has never been better than —11 per cent and at times has been —15 per cent.

In considering toll poles the estimated service life is now 23 years. Earlier studies which were less dependable indicated a life expectancy of about 30 years. It is generally correct to assume that the longest lived pole will last twice the average pole life. During the last five years, salvage on toll poles ran from —9 to —13 per cent. The company is using —10 per cent.

Since 1933 began the entire cost of permanent plant built is charged to plant account, whereas before the excess cost of providing new plant as in an emergency (like a storm requiring pole replacements) would be charged to the depreciation account. Expenditures for the temporary restoration of service are charged to maintenance. Any plant with an estimated normal life of over one year is charged to capital account.

Service life of exchange aerial cable obtained in the last two three-year bands was 16 years. The standard has been set at 22 years. Many factors affect the life of aerial cable besides growth of traffic and resulting inadequacy. Since 1929, 18 years has been used as the life expectancy of such cable, but the higher figure was used to allow for slowing down of growth under present conditions. "Filling up" is the principal cause of cable retirement. The cost of removal has ranged from 13 to 17 per cent in recent periods, but it is now allotted at 8 per cent.

The actual net salvage fell from plus 8 per cent in 1929 when material prices were high, to —9 per cent last year. The principal salvage value of lead-covered cable is as junk. Older types of cable taken out of service are seldom worth reusing. Junk prices in the next two years are likely to be unsatisfactory even if commodity prices advance.

Experience with underground exchange cable in the past few years indicates an average life expectancy of 20 to 24 years. Street changes, electrolysis, changes in laterals, the need of alterations in layout affect the life data, and the company has fixed life at 28 years, considering the current business situation.

In reply to an inquiry, Mr. Manson said that the largest underground cable is now one with 1,818 pairs and its diameter is 2⅝ inches.

Submarine exchange cable is studied by the turnover cycle method, which requires adding backwards from a starting point date the removals year by year until the sum total equals the amount of plant in place at the beginning of the period. This indicates the rate at which the plant is being exhausted. Zero salvage is estimated for submarine cable. Usually the cost of removal exceeds the gross salvage, if it is removed at all.

Insufficient experience has been had with toll aerial cable to throw much light upon its life expectation, but five years shorter life has been adopted as compared with toll underground cable (28 vs. 33). Forty years of gross life may be expected from modern, full-sized toll underground cable, but some sections must be removed on account of electrolysis, lightning, crosses with power circuits, street and highway changes.

Aerial cable is subject to removal for many causes: hunters, fires in woods and buildings, changes beyond company control, etc. It is a question how long metal sheaths of lead-covered aerial cables will last under ring cutting and the fatigue of metal crystallization, so that an estimated life of 35 years is probably too long, and the company has adopted a composite life of 28.

SELLING THE SERVICE.

By John G. Reynolds

1. After contacting a large number of persons who endeavored to get by my pleas with: "Mr. Brown next door has a telephone which I can use"; and fully realizing the nuisance which a constant borrower of telephone service can make of himself, I have prepared the following which I respectfully dedicate to the millions of telephone subscribers who are constantly bothered by telephone borrowers:

A most annoying pest to have about,
Is Mr. Bingham Preston Johnson Sprout,
It seems as tho' he never stays at home,
For he's always borrowing my telephone!
It's got so bad I hate to answer the door,
Because it's usually him wanting to telephone once more.
If ever I'm elected president of this land
One of the first acts to which I'll set my hand
Will be one, which will help many a home,
An act which will end: "May I use your telephone?

2. Be on the lookout for homes where there are elderly members of the family, who would appreciate and welcome an extension telephone which would save them many steps.

3. Be on the lookout for persons who frequently use pay stations. Show such persons the benefits of telephone service, show them that the money which they put into pay telephones would put telephone service in their homes, for use at all times.

4. When you enter a friend's home, be alert to every opportunity. Does he need a better grade of service? Is there a telephone in the kitchen? Is there a telephone in the guest room?

5. Persons who are deaf are prospects for deaf sets, gongs, double receivers or extension bells. Tactfully suggest these items to such persons and boost up your sales record.

Mr. Manson said that the pioneer New England intercity cable between Boston and Lowell in 1902 had only 41 pairs, almost as large as open wires. The relative wire weight was 140 pounds against 170 for open wire, per mile. Much trouble arose from electrolysis. Duct congestion grew and designs were improved. Until six months ago some of this 41-pair cable was still in use.

In 1905 a 90-pair cable was laid between Boston and Worcester under the turnpike. It was in service until 1930 when practically all the cable and conduit was lost through major changes in highway construction in connection with a new motor car trunk line. A study of the history of the old cables indicated that a 40-year life can be expected from modern underground intercity full-sized toll cable, but a 33-year life has been assumed for computations.

Replying to an inquiry of Commissioner Webber, Mr. Manson stated that the Nantucket-Marthas Vineyard submarine telephone cable has three pairs of wires, and is utilized for 13 telephone and one telegraph circuits through the use of the carrier system. Another cable would have been required several years ago had it not been for carrier developments. Submarine cable (toll) depreciation is 5 per cent.

The service life of galvanized iron toll wire averages about 15 years, and a maximum of 18 has been taken to allow for the reduced effect of depression on usage and handling. A life of 18 years was experienced with copper toll aerial wire in 1930, and 16 since; but 25 was adopted for present conditions. Segregated salvage data are difficult to obtain as the identity of removed exchange and toll wire is easily lost.

Underground conduit life is largely based on estimates of probabilities for both exchange and toll service. No salvage exists for such conduit.

Mr. Manson stated that the growing popularity of dial type private branch exchange boards will cut down the life of manually-operated P. B. X.'s and reduce the salvage from the latter. Studies show that the indicated average life of non-multiple P. B. X. boards is from seven to eight years. A service life of nine years has been adopted for current business conditions.

Multiple type P. B. X.'s represent 25 to 30 per cent of the total P. B. X. service account. The estimated service life is about 10 years, but 14 years is the adopted present figure. The resulting composite service life of both types is 10 years. The gross salvage is 34 per cent; cost of removal 4 per cent and net 30. The company uses 33 per cent salvage for non-multiple P. B. X.'s. For the multiple P. B. X.'s a 16 per cent salvage is used. The cost of removal is 3 per cent for both types.

Life of Station Apparatus.

The witness pointed out, in commenting on station apparatus life, that a large number of station sets is left in place on subscribers' premises after disconnection for economic causes, and this equipment remains in the plant account. This policy will speed up re-establishment of service, and reduce the cost of so doing for both company and subscriber. Wiring and drop wires also remain in plant account.

On January 1 last, 167,000 such sets remained on premises out of use; but it is believed that this will create a demand for service likely to be missed where the apparatus is removed from sight. The number of stations in service and those left on premises was as follows for the past decade for the entire company:

Year.	In Service.	Left on Premises.	Total.
1924.....	1,003,000	70,000	1,073,000
1925.....	1,069,000	101,000	1,170,000
1926.....	1,086,000	136,000	1,222,000
1927.....	1,130,000	123,000	1,253,000
1928.....	1,163,000	60,000	1,223,000
1929.....	1,183,000	54,000	1,237,000
1930.....	1,220,000	39,000	1,259,000
1931.....	1,257,000	49,000	1,306,000
1932.....	1,265,000	76,000	1,341,000
1933.....	1,154,000	167,000	1,321,000

A charge of $2 is made for changing station equipment, and the company has adopted a service life of 5.5 years for station apparatus, which is a little too long considering the probability that some of the stations left in place will not be used again. The present net salvage of station equipment is 62 per cent but this will be lessened soon. A large amount of junk comes from the removal of such equipment. The company is not buying any more desk stand sets, and about 230,000 handsets are in use now.

In 1930 the life of telephone booths was computed at 10 years, and 11 is used at present. The net salvage has been 62 to 64 per cent, but a 52 per cent salvage is used because the older types are subject to considerable junking. About $2,900,000 were invested in booths on January 1.

Commissioner Webber asked if lowering rates to get business would not help the company, but Mr. Manson said that if rates were cut enough to exert any appreciable effect on patronage, it would be ruinous. When the lowest-priced service of the company becomes too expensive for the subscriber, it is a case of giving up all service.

Costs of service are not directly associated with rates for different classes of business. A deluge of regrading would follow a rate drop of the type suggested. The company is not selling a commodity but a service. The commission requested the company to furnish it with data on the effect of regrading on revenue.

Counsel Marshall for the petitioners declared that the company has retired equipment assets before they have become worn out. Mr. Manson admitted this and affirmed vigorously that this is a vital policy. No telephone company can permit its central office equipment to get into a condition where it even approaches the state of being worn out.

He declared that in itself a low depreciation rate is not proof of good management, and it may mean that a company fails to take advantage of new developments in the art which will reduce the cost of service and/or improve it. A low depreciation rate may actually be a sign of extravagant plant and excessively costly service.

Studies of the life of Ford passenger and light trucks (under ¾-ton) gave a service life of 3.8 years, and 3.3 years for other company passenger cars. Light trucks of over ¾ths ton rating had a service life of 4.4 years and heavier trucks, 8.3 years. The company uses four years for Ford passenger cars and Ford light trucks, and five years for other lighter truck makes, with nine years for heavy trucks. Composite motor vehicle life is 5.5 years service records, and the standard taken is six years.

Salvage on automobiles was 10 per cent in 1929 and 9 per cent in 1931. The books will show the fictitious salvage of 34 per cent on motor vehicles in 1932 because so many vehicles have been transferred to the supply account as a result of the reduction of construction activities. This stopped the accumulation of depreciation charges on withdrawn vehicles. The depreciation rate on active motor vehicles is 15 per cent.

The tool account showed, when studied by the turnover cycle method, a life varying from 4.8 years in 1928 to 5.5 years in 1930. The company is using a life of 7 years on account of reduced usage, with 30 per cent salvage and 10 per cent depreciation.

The hearing adjourned, the cross-examination of Mr. Manson being scheduled for the next session.

Answers to the Traffic Questions Presented on Page 14.

1. All offices should now be using the person-to-person rate as their messenger rate. Any questions pertaining to rates should be referred to your manager.
2. Yes.
3. There is no report charge on the first call.
4. If the call is handled by the single-ticket method, the originating operator secures the O. K. on the call.
5. The rate in effect at the time conversation starts applies.

Estimate of Bell System Station Loss, First Quarter.

The Bell System's loss of stations in the first quarter of this year, according to a news dispatch from New York this week, is estimated at about 300,000. The decline has been leveling off in recent months, but so long as it continues, Wall street will probably continue to look for a change in the A. T. & T. dividend rate, it is stated.

Outside Plant Men Talk Things Over

Spring Construction Work Brings Tragic, Needless Accidents.

By JAKE, THE LINEMAN.

Mornin', buddies! First of all, this morning, I want to thank all of you buddies who have written in stating they thought the plan for a telephone workers' Safety Club, which was discussed in the March 25 issue of TELEPHONY, was O. K. Have you sent in your name and address? If not try an' do so just as soon as possible. You have nothing to lose and everything to gain. If the club is to be a "go," it's going to take your cooperation. So send in your name and let's get a club goin' that will give Ole Man Accident and his cronies the heeby-jeebies.

Well, it isn't gonna to be so long until we're gonna be out repairin' plant, replacin' old plant and constructin' new plant. Just because I know that a lot of accidents happen to telephone fellers when they're out fixin' things up, we're gonna take up a lot of signals coverin' handlin' of materials and construction of plant. Catch onto each signal an' hold onto it. It may save you a lot of grief and expense some day. Well, if you've all got a fresh chaw I guess we'd better start:

Skin irritations often result from accidental contact with creosote. Whenever you're handling or working on creosoted poles or creosoted crossarms, either during hot weather or when the poles and crossarms are new, wear a pair of good gloves, keep your shirt sleeves down and button your collar up around your neck or else tie a handkerchief around your neck; keep the legs of your trousers down around your ankles. Never rub your eyes when you are working around creosote.

Take plenty of precautions with cable reels delivered to the job. See that they are securely blocked and do not leave them on a grade. If at all possible set reels on a side street; keep them off main streets.

Observe these precautions: Place red lanterns near all openings, excavations, reels and other materials which have to be left overnight. Place guards and warning signs around such places during the day.

Paraffin catches on fire if heated to a temperature of over 390 degrees. Watch the thermometer and keep the temperature between 375 and 390 degrees. Keep a small piece of paraffin handy and carefully slide it into the pot to lower the temperature, if it gets beyond control.

Soldering coppers should be closely examined for loose or defective handles before you start to use them. Splicer's helpers should remember these points: Always wipe the copper off with a clean cloth before you pass it down to the splicer; warn the splicer just before you send the copper down on the handline; always pass the copper, point down.

Pedestrians and vehicle drivers should be warned when you're stringing wire or messenger over highways. Place a flagman near the job to warn folks of the danger. Remember a bit of warnin' is better than a damage suit.

Ropes used to support cable platforms should be constantly inspected and any defective ropes should be replaced at once. A defective rope on a platform may put a defect into some splicer. Nuff sed!

In spite of warning, some workers still throw tools and materials to the ground instead of using a handline. Always use a handline and there'll be less chance of the item you are lowering to the ground landing on someone's dome.

Never place additional weight on old strand until you have fully inspected the strand and feel sure that the strand will hold the additional weight.

Get away and stay away from rope under strain. Then if something breaks, your neck will run less of a chance of breaking too.

Always guard pulling-in lines which obstruct sidewalks on highways.

Countless accidents are caused by worn, defective tools and defective materials. Employes should get the habit of returning all defective items to the storeroom. Foremen should encourage their men to keep the outfit free from anything which is defective. If such a practice is constantly followed there'll soon be a decrease in the number of accidents.

Constant carelessness is one habit which no foreman or company has to put up with. If warnings fail to get the carelessness out of an employe's system, the best thing to do is to let him out. There are many men without jobs today who would be glad to work safely. Nuff sed! If you're careless get it out of your system 'fore you get put out.

Instead of allowing scrap wire and broken insulators to lie around, pick them up and put them in a container. Good housekeeping is one way to stop accidents.

Don't stand on poles while strand is being pulled in, unless it is absolutely necessary.

Excess dirt should be disposed of after the pole has been set. This is a little point but the less dirt around a pole the less chance for a bad slip.

Never allow pikes, long shovels, digging bars, pole jacks and other tools to be around when you're not using them. Put them back on the truck.

Time is never saved when a gang hurries through a job, forgetting safety, for before the job is finished a costly accident usually occurs. Buddy, when your gang goes out, on either a new construction job or a repair job, use safety and you'll save time.

Safety will help you live out your life. An accident might put the finishin' touches to you and how would the little woman, who depends on you, make out? How would your boy or girl get that college degree? Think those questions over and you'll agree that safety helps us to keep going and as long as we're going, the little wife is not going to worry and the kids have a chance to go to college.

Waal, that bunch ought to give you a few things to think about. Study them all over and use them whenever the opportunity presents itself. We've shure covered lots of pointers during the past 16 months and I know from my correspondence that lots of fellers have been aided by them. The next time you get onto a good safe practice which the rest of our buddies might use, send it in and I'll pass it along.

Well, I'll be ramblin' but I'll be back Saturday, so be on hand and remember to drop me a line giving your opinion of the proposed Safety Club. Use as your safety thought durin' the week:

"Foolish, unnecessary accidents are constantly wiping foolish, careless persons out of existence and as my mother never raised any foolish children I'll stick to safety and live."

So long. Take care of yourself and be safe.

Southern New England Company Announces Construction Plans.

The Southern New England Telephone Co., of New Haven, Conn., plans to spend $3,900,000 this year for gross additions, $1,700,000 of which will be for rehabilitation projects, A. F. Brooks, vice-president and general manager, announced recently.

Of this amount $395,000 will be expended in Hartford county for alterations and improvements at Hartford, Bristol, New Britain, Farmington and other communities; $265,000 in New Haven county; $130,000 at Bridgeport, Stratford and Fairfield; $85,000 at Darien, Stamford, New Canaan and Old Greenwich, and $825,000 in various other parts of the state.

The company reported 30,000 less telephones in the state than a year ago and curtailment of the dial program "because additional facilities for growth are not immediately necessary."

Mr. Brooks announced the share-the-work program, inaugurated several months ago, whereby working hours were shortened to avoid dismissals, would be continued.

"Everyone in the company is on a short-time basis," he said. "As a result the company has been able to retain all its regular employes."

Miscellaneous Items in Telephone Plant Construction Work.

The managers of small companies have many construction problems to deal with in the course of their every-day work. The accompanying illustrations show cases of conditions that have been confronted by the Boyer Valley Telephone Co., which has its main office and exchange in Woodbine, Iowa.

In the vine-covered brick building is installed a 600-line switchboard which serves

Headquarters Office and Exchange Building of the Boyer Valley Telephone Co., Woodbine, Iowa.

Woodbine. The 2,800 subscribers of the company, who are located in Woodbine, Dunlap, and Logan, are billed for their service from the headquarters offices which are located in this building.

Cable-Splicing Platform Mounted on Truck by Means of Which Cable-Splicing Equipment Can Be Quickly Transferred.

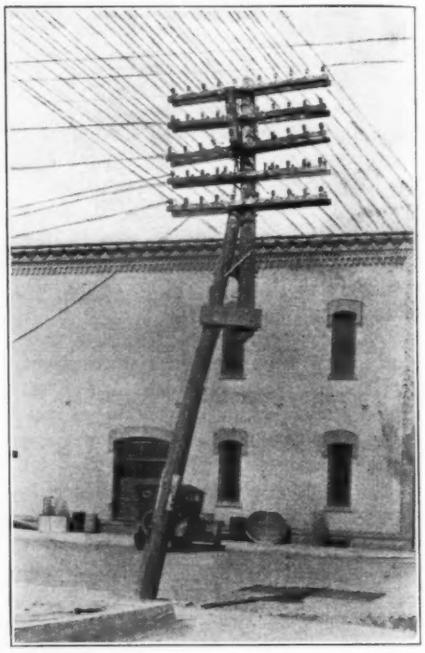
Some time ago paving work was being done in Woodbine and it was necessary to remove a pole supporting an open-wire lead so that the paving at a corner could be laid. It was decided to install cable in place of that lead but the cable could not be put in on the short notice that was given the company.

A pole was set inside the curb line at an angle so that its top came up between the lower double crossarm of the pole to be moved. The inclined pole was then bolted to the other pole by means of two short planks, one on each side of the pole. A crossarm brace was also attached to both poles near the top of the bracing pole, while a rope was passed just below the crossarm around the old pole and the top of the inclined pole.

The old pole was then sawed in two, just below the two bolted planks, and the lower part removed. Its top, with the wires, was firmly supported for the few days necessary to install the additional cable facilities.

For the quick transfer of cable-splicing equipment from one point to another along a cable lead, a cable-splicing platform was built for attachment to the company's truck, as shown in another of the illustrations. With this equipment, the work on cable was speeded up to a considerable extent.

General Superintendent Lester D. Meyers says that the company, in the future, will not lay underground cable unprotected outside of town limits. The reason for this decision is shown in one of the illustrations which pictures a piece of cable that

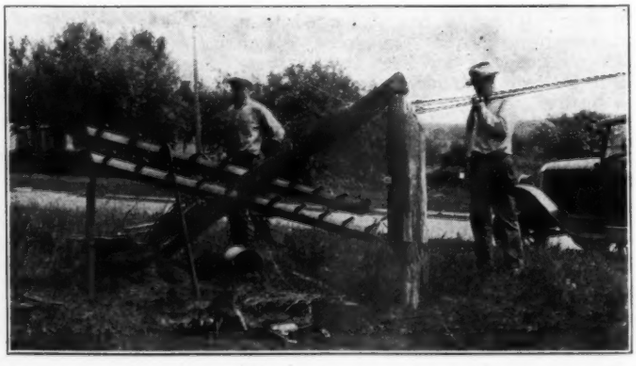


Novel Way of Temporarily Supporting an Open-Wire Lead Necessitated by Street Paving Work.

was dug up from under a railroad crossing near Dunlap, Iowa.

Gophers were operating in that vicinity and had enjoyed a number of meals from the lead sheath of the cable. On other occasions, the gophers have given the company considerable trouble by gnawing into the cable sheath, even when protected by a coat of asphaltic compound.

One day at Dunlap an automobile failed to make a turn and crashed into a nearby pole of the company. The pole was broken into three pieces, as shown in the illustration; but strange to relate, the two persons in the car were not injured and the car was not damaged to any great extent.



Iowa Gophers Made Quick Work of the Lead Sheath of Buried Cable Near Dunlap, Iowa. Near Dunlap, a Car Broke a Telephone Pole Into Three Sections But Was Not Seriously Damaged Itself and Neither Were the Persons In It Injured.

THIS NEW Magneto Switchboard

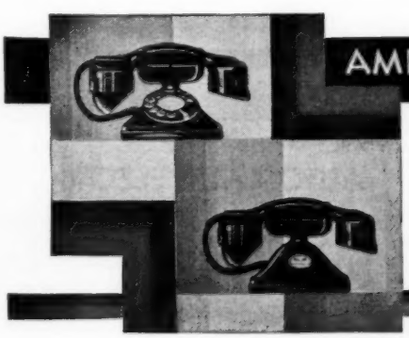
Meets ALL Conditions In ANY Magneto Exchange

NO matter what kind of telephones you are using; no need to touch them. No matter if your lines are metallic or grounded; they'll work equally well. No matter how many stations per line; leave them as they are.

An AUTOMATIC ELECTRIC PRODUCT

All you need to do is replace your present magneto board with the simple R-C-X unit. Then begin to collect a profit instead of piling up a deficit.

Owners of magneto exchanges will find the experience of a typical R-C-X user, recounted on the following page, of unusual interest.



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When communicating with American Automatic Electric Sales Co., please mention TELEPHONY.

Wittenberg Telephone Company

R. G. PETERSON, Manager

Wittenberg Wisconsin

March 16, 1933

Mr. R. H. Burfeind,
American Automatic Electric Sales Co.,
1033 W. Van Buren Street,
Chicago, Illinois

Dear Mr.Burfeind:-

Referring to our recent talk, I shall be more than glad to put down in writing some of the ideas I have expressed to you in person about our remote controlled exchange at Elderon.

As you know our Elderon exchange was previously operated by a family, working on an agency basis, at a cost of $60.00 per month. You can easily realize that this expense was entirely too heavy to permit us to operate the exchange at a profit, but there seemed to be no other way of taking care of the service.

Not only that, but the fact that we had no direct control or supervision over the operation of the exchange meant that the service was anything but satisfactory, a subscriber often having to wait a long time before any member of the family was able to give the call proper attention. These conditions I have found to be generally true throughout the entire small exchange field.

Since the installation of our remote controlled exchange, all this has been changed. The $60.00 agency expense has been cancelled, and we have had no increase in expense at Wittenberg, which is the control center for Elderon. The Elderon exchange is showing a nice profit, and the subscribers are surprised at the quick connections and improved service they are getting at all times.

I have come to the conclusion that the remote controlled exchange is the real answer to the biggest of the operating man's worries during these times - which is to get the small magneto exchange out of the "red."

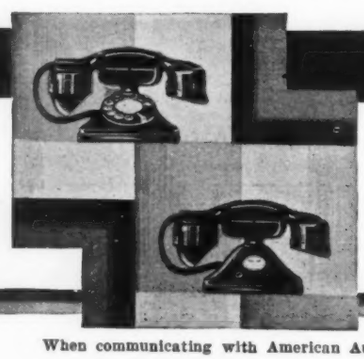
Yours very truly,

WITTENBERG TELEPHONE COMPANY

R. G. Peterson

Manager

RGP/ES



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...n PROFIT By This Company's Experience

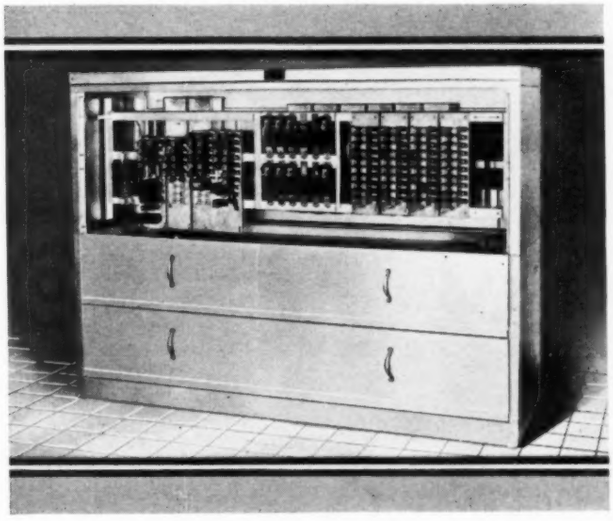
...ted in this letter is not exceptional. It is typical of the far-reaching ch... R-C-X is making in the financial condition of the magneto exchanges in wh...g installed.

This is ...he R-C-X has been specially designed for profitable operation under toda...ns—which require the largest possible reduction in operating expense with t... possible investment in new equipment.

...INVEST NOW

The b... confronting every telephone company today is how to ... list of subscribers. Improving service by getting rid of ... equipment will help materially. Worn out or out-of-dat...fice switchboards mean poor service as well as costly ... The R-C-X will not only pay big profits, but will also h... your old subscribers as well as secure new ones.

...us a few essential facts and figures about ... magneto exchanges and we will show you ...ou can take them out of the "red." Write ...y.



The R-C-X Senior, for magneto exchanges which are expected to grow beyond 25 lines in a relatively short period. Ultimate capacity, 100 lines. For an R-C-X for the SMALLER small exchange, see next page.

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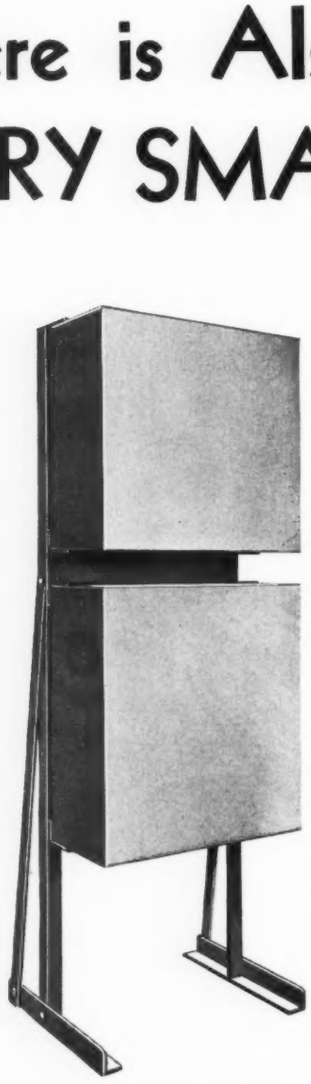
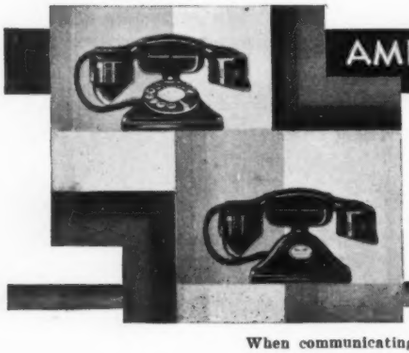
There is Also an R-C-X For The VERY SMALL Magneto Exchange



The R-C-X Junior is available in two sizes—for twelve or twenty-five lines—completely equipped and assembled in unit form for floor or wall mounting.

DESIGNED especially for the hundreds of magneto exchanges of 25 lines or less, the R-C-X Junior offers all the advantages of R-C-X economy and improved service at a NEW LOW INVESTMENT COST, commensurate with its small capacity and simplified unit design.

The R-C-X Junior, like its bigger brother, is designed for profitable operation of magneto exchanges under today's conditions. It eliminates all traffic expense wherever it is installed and renders improved service twenty-four hours a day. And the investment is so small that the entire cost of the equipment is paid for out of net savings in two to four years.



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Iron Pipe Under-River Telephone Cable Crossing in Wisconsin.

The Wisconsin Telephone Co. recently completed the construction of an iron pipe crossing under the Manitowoc River. The project is unique in that it is the first river crossing of its type to be constructed in Wisconsin, although other similar crossings are in use elsewhere in the Bell System, says C. W. Wilson, construction superintendent, in an article descriptive of the installation published in the Wisconsin Telephone News.

The first submarine cable crossing in Manitowoc was placed at Eighth Street about 1895. In subsequent years, submarine cables were constructed at both Eighth and Tenth Streets. Decision to construct a crossing that would probably never again require removal or replacement was made as a result of experience with other submarine cable construction in the Manitowoc River.

In the past ten years it was necessary to replace or move the submarine cables on five occasions, because of bridge construction and repair work. During the last decade, subscribers south of the river were inconvenienced by two interruptions to service, once when a car-ferry's anchor damaged a cable and again when the cable house on the north side of the river caught fire and the cables were burned.

After the construction in 1930 of two protection cribs at the Tenth Street bridge, it became necessary to rebuild the cable crossing and a study was made to determine the most practicable and least costly method of restoring the crossing to a safe and permanent condition. It developed that this could best be accomplished by constructing a pipe crossing at Ninth Street.

On October 20 last, approval was given for the construction of this pipe crossing. Specifications provided for the placing of nine 3½-inch genuine wrought iron pipes, sloping gradually from manholes located approximately 50 feet back from each dock line to a depth in the river channel below any possible future navigation requirements.

The work of dredging the trench and excavating the shore ends was started December 2. To safeguard against cave-ins that might cause damage to adjacent gas mains, docks, or other property, piling was driven from a point about 40 feet inside to approximately 15 feet outside the dock.

The dredging of the trench across the bottom of the river proved to be a difficult undertaking. After the muck had been removed, a strata of gravel of the appearance and consistency of rough concrete, from one to ten feet thick, was encountered. Below this was found a strata of hard-pan which is almost as hard as rock.

Below the hard-pan, the geological formation was solid blue limestone, and no further depth could be secured by ordinary

At Left, Iron Pipes Resting on Barge Are Towed Into Position; Center, Below, Dredge in Operation; Right, Maneuvering Scow Into Position; Lower Left, Driving Piling Near River Bank; Lower Right, Pipe Lowered Into Trench in River Bed.

Views Showing Construction of Submarine Cable Crossing Below Manitowoc River at Manitowoc, Wis.

dredging. A minimum depth below the bed of the channel of approximately 28 feet was finally obtained.

The laying of the pipe was an interesting operation. Various methods of placing the pipes were discussed. It was decided, however, to lay the nine pipes, one at a time, by towing them along the bottom of the trench. Considerable doubt was expressed whether the pipe would be flexible enough to permit the bending that this method would entail.

A preliminary test determined that the pipe had sufficient flexibility, and this was further illustrated by the ease with which the pipe was placed. Extra heavy couplings were used to safeguard against breakage due to the bending stresses during placing.

The pipes were assembled on the job. In order to secure necessary space to couple together 400 feet of pipe to form one piece, through the courtesy of the Chicago & Northwestern Railroad, and the city of Manitowoc, it was arranged to close Quay Street during this operation.

Owing to the two slight horizontal bends in the trench, one at either side of the channel, two derrick scows were anchored at the docks, on either side of the river. The pipes were then drawn from the south shore and supported on the side of the anchored scow. Singly, the pipes were transferred from the anchored scow to a third scow and towed into position along the bottom of the trench to the north side.

After the pipes were laid in the trench, soundings were made by a diver, who explored the trench and found the pipes in orderly position buried below the bed of the river.

Each pipe was capped and tested under air pressure. The shore ends of the pipes on both sides of the river were clamped together to permit ease of connection in the manholes.

Wednesday, January 18, two 1212-pair 24-gauge cables were pulled into the pipes, and the following day a CA cable, containing 35 quads 19-gauge, two pair 16-gauge, and 658 pair 22-gauge, conductors, were installed. These cables were pulled through the pipes with ease. The pipes containing the cables were filled with mineral seal oil. The vacant pipes were plugged at either ends. The oil and the plugs prevent circulation of free air and thus retard corrosion.

All-Cable Toll Circuits Between New York and Montreal.

New paths for long distance telephone conversations between New York and Montreal, Canada, were provided for the public early this year when six circuits in the first cable connecting the two cities were placed in service.

The through toll cable was made possible by the completion of a 165-mile cable line extending between Montreal and Glens Falls, N. Y.; two new long lines repeater stations at Ticonderoga and West Chazy, N. Y.; a new cable repeater station at the New York Telephone Co.'s building at Elizabethtown; and a new Bell Telephone Co. of Canada central office in Montreal.

The new cable link is connected at Glens Falls with an older cable reaching into New York City, and at Albany with the existing long distance network.

Previous to the opening of the new cable connections, all long distance conversations between New York and Montreal were routed over combinations of cable and open-wire circuits. All outgoing calls from New York, for instance, were transmitted in cable circuits to Albany or White Plains and from those points along open-wire lines to Montreal.

Part of the new cable was placed in service last August, to take care of toll traffic to points in the Adirondack Mountains. Circuits from these places join the cable at Elizabethtown, and all calls from New York and through calls, passing through the city, are handled over them.

In the New York-Montreal cable there are wire facilities for hundreds of long distance circuits in addition to those already in service. Many of these are expected to be placed in operation soon. Also included in the cable are special wires for program transmission circuits to be used for interconnecting radio broadcast stations. There are also wires in the cable which will be used for the operation of teletypewriters and others which will carry telegraph messages between the two cities.

The construction of this route involved several unusual features. One of the most difficult jobs was that of clearing the way for ten miles through forests and over mountainous territory between Glens Falls and Ticonderoga.

The poles for this stretch were in most instances planted in solid rock where the holes were created by blasting and drilling. Also near Montreal, where there are peat bogs, the poles were planted in holes lined with logs and filled in with rocks to reduce the hazard of fires in the peat beds.

TO WIN

By Miss Anne Barnes,

Traveling Chief Operator, Iowa Independent Telephone Association, Des Moines, Iowa

Two high school basketball teams, contesting in the finals for a state championship, recently, were from widely-different environments as to locality. One team was from a city of 168,000 population and the other from a town of 300 inhabitants. One team had all the advantages of city high school basketball training and the other had the limited advantages that a small town high school could provide in that respect. The city team lost to the small-town team. How did this happen? Well, *it did not just happen.*

According to a statement made by one of the city high school fans, the city team should have won easily the championship, as it was far better trained, but it was too confident. In fact, its confidence far outstripped its efforts.

The small-town "outfit" (an expression often used when speaking of small-town business firms, basketball teams, etc.) played with all its might—*to win.* Those husky boys very likely had been warned, just as the city boys were, that they must not depend on confidence born of past performance, in order *to win today's game.*

The game was pretty close for at least two-thirds of it, but that small-town team never once relaxed its vigilance, effort and enthusiasm. On the other hand, I fear that the city team looked down upon the small-town team in some such manner as Goliath looked down upon David.

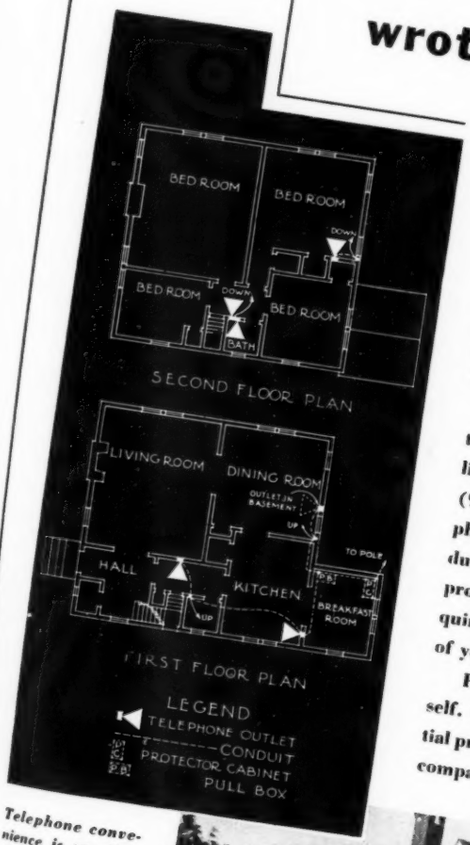
I am reminded of a story I heard about a noted writer which he related himself. When quite young he wrote a great deal of poetry, most of which did not deserve to be labeled as such, even in that day when publishers were not nearly as particular as they are now. He was not discouraged when his poetry was rejected. He just sent it to another and another publisher until it made the rounds of all he could find. Then he put it away in a drawer with the rejection slips. But one day in opening a letter, instead of his last poem coming back with a rejection slip, he found a check for $50 in the envelope.

This is where the turning point toward success for that young man should have been if—

"Ah! At last the publishers recognize my ability as a writer of verse. Now my collection of poor, little rejected poems shall soon have the commendation of the public." Needless to say the public never saw them.

MORAL: You cannot cash in on yesterday's performance. The cheers of yesterday are only reminiscences. "Today is yesterday's pupil."—Franklin.

11 practical builders wrote this advertisement

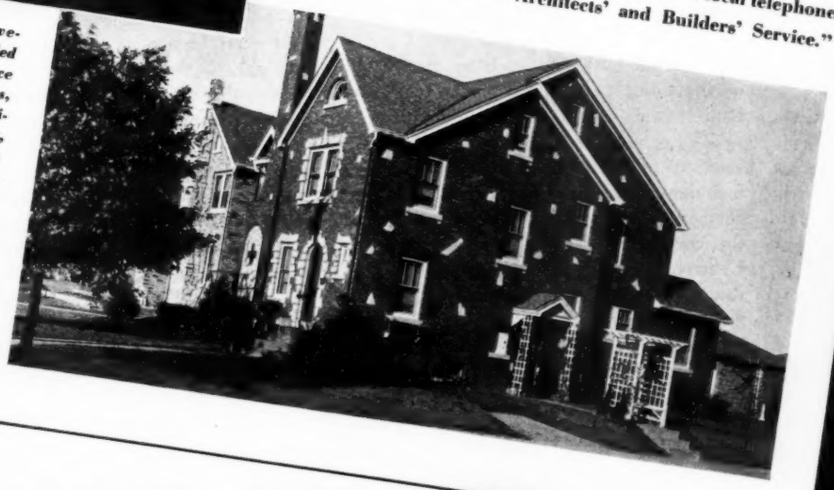


WE REGULARLY use these pages to tell you *our* ideas about built-in conduit and telephone convenience. But this month, for variety's sake, we let eleven practical builders present *their* ideas on the subject. Here are random extracts:

Telephone convenience: (1) "is expected by prospective purchasers and fully justified by its later use" (2) "is a necessity, not a luxury" (3) "provides an additional strong selling point" (4) "much more than repays the little it costs" (5) "receives the immediate appreciation of the buyer."

And again: (6) "provision should be made for telephones throughout the house" (7) "no feature adds more to the livability of the home" (8) "purchasers are very much pleased" (9) "we find it best to consult with representatives of the telephone company" (10) "we build in complete telephone conduit and outlet arrangements that will conceal all wires and provide ample pathways for present and future telephone requirements" (11) "we appreciate the splendid co-operation of your company."

Probably you've already proved these statements for yourself. If not, it will pay you to test them on your next residential project. Just call the Business Office of the local telephone company and ask for "Architects' and Builders' Service."



Telephone convenience is provided for in the residence of Dr. L. C. Ives, 2400 North Sheridan Road, Peoria, Illinois, by built-in conduit serving six telephone outlets. GEORGE B. KIRCHGESSNER, *Designer and Builder, Peoria.*

AN ADVERTISEMENT OF THE
AMERICAN TELEPHONE
AND TELEGRAPH COMPANY

Some Phases of the "Buy Now" Movement

Low and Favorable Prices Based Upon Large Volume Purchases of Raw Materials and Mass Production—Recent Production Not Sufficient to Enable Manufacturers to Continue Low Prices—Discussion of the Pole Situation

In advising telephone companies to "Buy Now" the equipment and supplies necessary for the maintenance work that must be done in the near future, emphasis has been laid on two phases of the situation.

One is the enabling of the manufacturers and suppliers to keep their factories operating on an adequate basis, continue the engineering and research activities that have been so valuable to the wonderful development of the telephone industry, and to keep their salesmen covering the field and in touch with the service companies.

The other principal reason advanced for present-day buying is the direct profit to the operating company in getting unusually low prices. In all lines of business, postponed buying has reduced prices, as firms have thus sought to encourage trade in order to keep going. This is true in the telephone industry, prices having been lowered to the minimum.

Supply and Demand.

The old law of supply and demand is sure to effect a change in this temporary situation, for as soon as business picks up there will be an advance in prices. It is natural to expect this development in every industry.

In fact, already one of the large telephone manufacturers recently sent out notice to the trade that effective April 1 there would be a sharp increase in prices, in some instances running up as high as 25 per cent. All of their principal customers were advised by telegraph to that effect some time ago.

This manufacturer gives a reason that the very low and favorable prices now amended were established several years ago, and were based on the then large volumes and low costs. In spite of some reduction in raw materials and in labor, however, recent volume was so low that unit costs advanced appreciably, and this manufacturer could no longer afford to continue to put out goods at the low prices that prevailed in 1930 and 1931.

The history of the telephone business is full of instances of the manufacturers and suppliers helping operating companies to obtain needed materials and arranging for convenient payment. This practice is not out of date now, according to R. S. Meyer of the Michigan Pole & Tie Co. of Newberry, Mich., one of the most reliable of telephone pole producers, who says his concern has long offered responsible service companies the necessary credit accommodations.

This is especially helpful to those companies which have failed to build up a depreciation reserve sufficient to finance needed construction work.

In a recent letter to TELEPHONY, Mr. Meyer discusses the "Buy Now" idea as follows:

"Your editorial in the March 18 issue of TELEPHONY should prove of vital interest to every supplier and user of telephone equipment—in fact, to every individual who may be only indirectly concerned in the welfare of the telephone industry.

This would seem to be a most opportune moment to establish what you term a 'Buy Now' policy, not only because of the direct results which would be experienced by its immediate adoption in a general way by the telephone operating companies, but also because of the impetus it will give to the constructive program now being advanced by the administration in Washington.

After all, no national program for general improvement of conditions can be successful unless it has the unstinted support of every industrial group; and you are to be commended for your initiative and efforts in bringing the shoulder of the telephone group behind the wheel at this early date. It is also fortunate that you have assumed this leadership, because this will clearly demonstrate that the move is not prompted by a selfish motive, nor intended as criticism of past performance or policy.

"Buy Now" Plan Approved.

"The plan is a definite, constructive suggestion and should have the whole-hearted cooperation and support of everyone associated with the telephone industry.

In actual operation such a plan affords opportunities and possibilities that are bound to mean substantial, direct benefits to a large number of individuals and firms, starting in with the telephone subscriber and then relayed on through the operating company, the supplier, the factory worker, the miner, woodsman, and every line of endeavor engaged in the production of the raw product, its manufacture into equipment, transportation to and from distributing points, and finally, in the actual construction and maintenance of the telephone plant and line.

This would prove particularly helpful to those engaged in the production of the raw products because that branch of employment has perhaps suffered the greatest during the past few years. That large army of men has been out of employment because of the necessary drastic curtailment of production; and the chosen few who have been permitted to continue their work, must necessarily do so at what might be termed 'welfare wages'—wages barely sufficient to provide food, clothing and shelter.

Such factors make it possible for the telephone company to purchase *now* their material at ridiculously low prices, and actually realize substantial savings that will be impossible of duplication for many years to come, if ever.

The Pole Situation.

"Being more familiar with poles than any other item or material entering into the construction and maintenance of either plant or line, we will illustrate this point by briefly outlining the difficulties which have been experienced by the supplier and producer who specializes in telephone poles.

The supplier has maintained his stock at normal proportions, but due to the lesser demand, has not been called upon to engage in the active production of more poles. In effect, he has ample poles on hand to take care of the emergency requirements developing for some time to come, and perhaps is finding it exceedingly difficult to hold his stocks intact until such time as they can be liquidated.

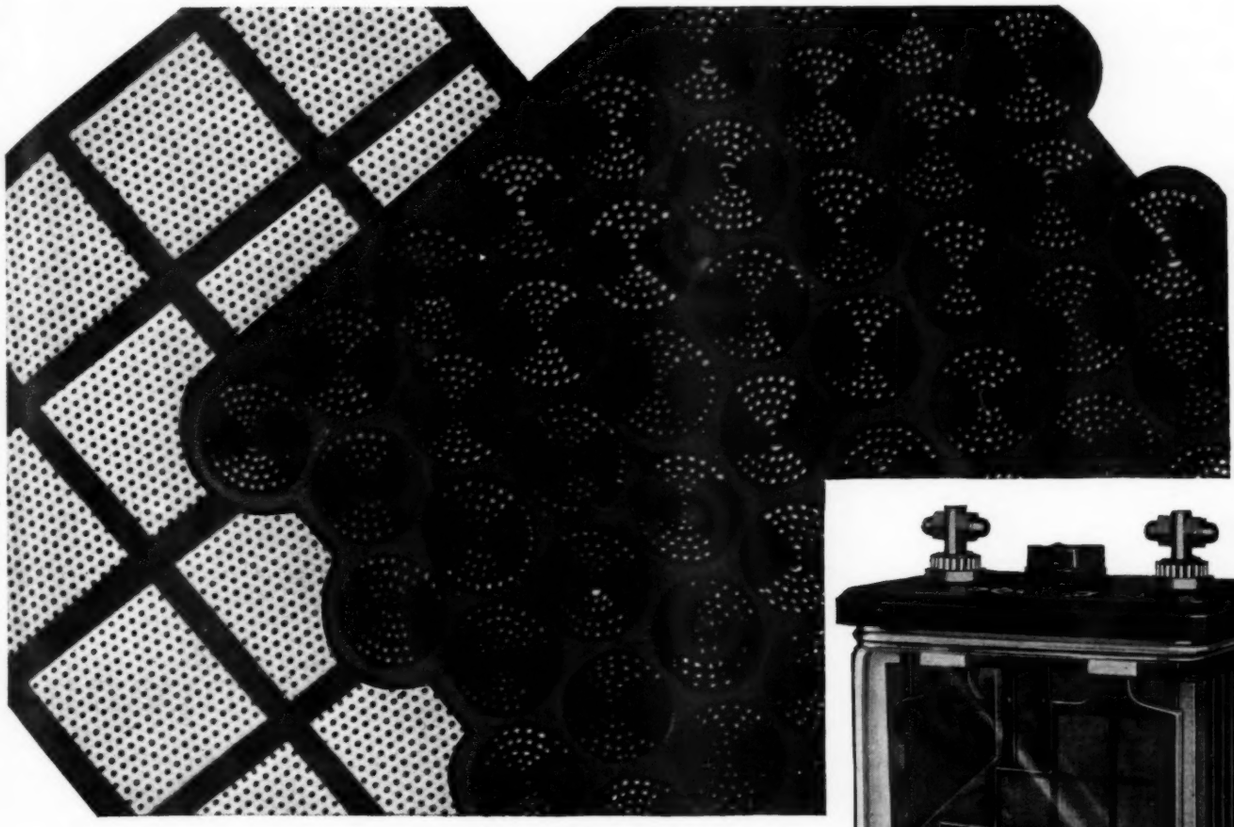
All of these factors have tended to reduce prices during the past two or three years; but there is a limit as to how far this reducing action can go, particularly when we find that in some instances poles are now selling for prices that are far below the actual cost of production. *This stage of rock bottom prices has been reached.*

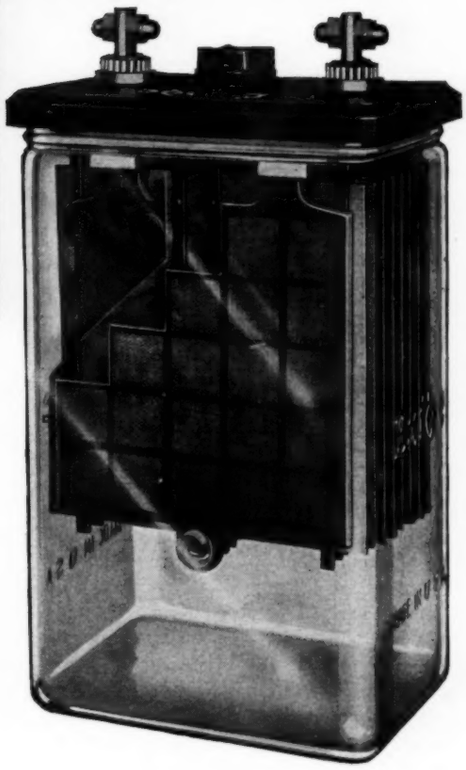
This unfavorable and unfortunate state of affairs as concerns the labor involved in the production of the raw products does not necessarily restrict its devastating effect to that group alone, as absence of earning power within that group can only result in a similar curtailment of expenditures by that same large army of men.

Naturally, this will be reflected directly in the number of telephones in their territory that are continued in use, making it of paramount importance to the telephone companies to see that these men are provided employment which will enable them to retain their telephones, and permit use of the long distance toll service when desirable and necessary.

This illustrates how all branches of industry and endeavor are interdependent and why it is necessary that, at all times, we give consideration to the collective needs, rather than the needs of any one isolated group or community.

The purchase of poles for replacement purposes and new construction has undoubtedly been kept at the absolute minimum during the past two years, and any appreciable effort to make these replace-





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ments *now* will immediately establish a more favorable trend in both the production and manufacture of poles.

An exhibition of buying power on the part of the telephone companies, to restore their lines and plants to a semblance of normal conditions and service, will make inroads upon the available pole supply; and naturally the supplier will need to start production to keep his stocks well-balanced and to be in a position to service each requirement as it develops.

This reaction will not be confined to the pole supplier, but will undoubtedly be just as prominent with the manufacturer of line hardware, wire and cable, plant equipment and every item necessary in such construction activities. The benefits would not be restricted to any one group of employes, but would unquestionably create a most favorable impression in all parts of the United States.

It is not to be expected that the telephone companies alone will bear the brunt of this worthy 'Buy Now' policy, but the supplier and manufacturer must cooperate with them to the fullest extent, and I am certain that every responsible individual and firm will assist to the best of their ability and capacity.

Some of the Independent companies have perhaps been unable to build up a depreciation reserve sufficient to finance the needed construction work and will be unable to proceed along the lines suggested unless the supplier agrees to offer a plan that will permit convenient payments out of current earnings, over a reasonable period of time. Our company has long offered to so help any responsible company which was in urgent need of poles; and I am sure that this is true of other suppliers as well, all of whom are unquestionably ready to extend a similar degree of cooperation during this period of emergency.

A similar 'Buy Now' campaign was launched some 15 months ago by another influential group, but, unfortunately, their efforts did not attain the high measure of results that were then expected.

This was apparently due to the fact that at that time the movement was just a trifle premature—we were not yet ready for the general stabilization of business. Today, however, the entire country is looking forward with eager anticipation; much has already been accomplished in the form of general improvement, and this would seem to be the most propitious moment to inaugurate the 'Buy Now' policy.

We feel confident that the plan will meet with a large measure of success and that the majority, if not all, of the manufacturers, suppliers and telephone operating companies will join in the pledge to give the movement our best efforts and wholehearted support."

The suggestion of Mr. Meyer, relative to the suppliers' helping on an "easy payment" plan, will appeal to operating companies in territory where banking facilities are restricted since the moratorium. This is an example of cooperation that should encourage service companies to go ahead with their purchases of needed merchandise.

Bell Purchase of Two Large Companies

Application of Northwestern Bell Telephone Co. to Interstate Commerce Commission Seeks Approval of Purchase of All Properties of the Tri-State Company in Minnesota and of the Dakota Central Telephone Co. in the Dakotas

The joint application of the Northwestern Bell Telephone Co. and the Tri-State Consolidated Telephone Co. filed with the Interstate Commerce Commission on March 17, asked for permission to take over the entire property of the Tri-State Telephone & Telegraph Co., of St. Paul, Minn., and the Dakota Central Telephone Co., of Aberdeen, S. D.

In TELEPHONY of April 1, it was stated that the effect of the purchase of the common stock of the Tri-State Telephone & Telegraph Co. by the Northwestern Bell company would be to give the Northwestern Bell company the Tri-State exchanges in the St. Paul and certain toll lines in southern Minnesota.

This statement was in error, for the application filed with the Interstate commission states that the effect of the transfer of the stock of the Tri-State company to the Northwestern Bell company "will be to give it control, through practically complete stock ownership, of the St. Paul exchange, together with an extensive system of toll lines and small exchanges in southern Minnesota, the eastern half of South Dakota and a small portion of the southern part of North Dakota."

An agreement made February 21, 1933, states that the contracts between the Northwestern Bell Telephone Co. and the Tri-State Consolidated Telephone Co., dated November 17, 1930, and December 13, 1930, are terminated. The latter company, it is stated, owns 99,198 shares of the common capital stock of the Tri-State Telephone & Telegraph Co., out of a total of 100,000 issued and outstanding.

It is stated that the Northwestern Bell company holds promissory notes of the Tri-State Consolidated company of the principal amount of $19,510,101, "heretofore given by the Consolidated company to the Northwestern company for money loaned the former company by the latter, which by their terms became due and payable on February 15, 1933." These notes are secured by a pledge of the 99,198 shares of the Tri-State Telephone & Telegraph Co., which stock is owned by the Consolidated company.

"The Consolidated company," it is stated, "neither has nor can obtain the money with which to pay the same or any substantial part thereof, other than the collateral."

In view of these facts the parties agreed that the Consolidated company will assign and transfer a full and complete title to the Tri-State common stock to the Northwestern Bell company and the Northwestern Bell company will surrender the notes of the Consolidated company in the principal amount of $12,544,425, subject to the authorization of the Interstate Commerce Commission.

"In the event," the agreement provides, "that the Interstate Commerce Commission shall, by order, refuse to find and certify that the acquisition of the said stock by the Northwestern company will be of advantage to the persons to whom service is to be rendered and in the public interest; or in the event that any other public regulatory body to which application may be made by the parties hereto, shall fail or refuse to consent to or authorize the acquisition of the said stock by the Northwestern company, the Northwestern company shall be forthwith released and discharged from all obligations to accept the assignment and transfer of said stock and from all obligations to surrender said notes to the Consolidated company."

So long as the stock of the Tri-State company is pledged as security for the notes, all dividends which may be paid thereon shall be applied: first, to the payment of reasonable out-of-pocket expenses of the Consolidated company; and second, to the payment of interest on the notes, the agreement states.

In the joint application to the Interstate commission, it is represented that the acquisition by the Northwestern Bell company of the 99,198 shares of the common stock of the Tri-State Telephone & Telegraph Co., with a resulting control of the properties of the Tri-State and Dakota Central companies, will be to the advantage of the persons to whom service is to be rendered and in the public interest for the following reasons:

"(a) The cities of Minneapolis and St. Paul adjoin one another on a common boundary of over six miles, and for a substantial part of this distance the cities are

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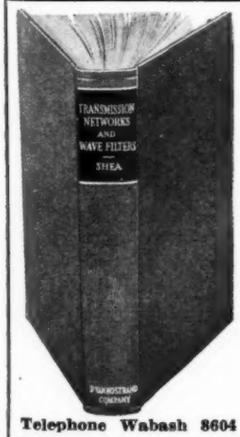

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By
T. E. SHEA, B. S., M. S.
Member of the Technical Staff, Bell Telephone Laboratories

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so built up that it is impossible to tell where one city ends and the other begins. The volume of telephone traffic between the two cities is in excess of 20,000,000 calls per annum.

To accommodate this traffic the plant of the Northwestern company in Minneapolis and that of the Tri-State company in St. Paul have been connected together and interwoven as if they were a single telephone exchange, and they actually are a single telephone exchange from the standpoint of telephone engineering, operation and management.

As a result, operating efficiency in practically all phases of the business would be greatly increased if these two properties were operated under a common control. Unified control would insure a better control, and the Northwestern company proposes, if and when it acquires control of the St. Paul exchange through the aforementioned stock purchase, to reduce the rates charged the public for telephone service in both St. Paul and Minneapolis.

(b) Unified control of the St. Paul and Minneapolis exchanges will enable unified toll terminal arrangements to be established for the two cities, thereby avoiding an additional switch at Minneapolis on a large part of the toll business into St. Paul, and thus improving and speeding up the St. Paul toll service.

(c) The large territory served by the Tri-State and Dakota companies is almost entirely surrounded by territory served by the Northwestern company, and practically all the messages between points in that territory and other parts of the United States, as well as many messages passing across that territory between points on either side, are carried partly by the lines of the Tri-State and Dakota companies and partly by the lines of the Northwestern and other Bell System companies.

The volume of this joint-haul business is large and much of it is carried over relatively long hauls. Better, quicker, more dependable, and in the long run more economical service, can be given on messages passing over these lines if they are owned, engineered and operated by the Northwestern company as an integral part of its toll network and of the national toll network of the Bell System than under present conditions.

(d) The acquisition by the Northwestern company of the exchanges of the Tri-State and Dakota companies other than St. Paul, would result in increased efficiency and economy of operation. The territory where these exchanges are located cuts the present Northwestern company territory in two, and is interposed between the two halves, as a result of which the supervision and management of the Northwestern company's property has been made more difficult and expensive than if its territory had been more compact.

The acquisition of this intervening territory will facilitate the arrangement of areas and districts for administrative purposes, and will enable the combined properties to be managed at proportionately lower supervisory and overhead costs, and with greater efficiency.

(e) The acquisition of the stock of the Tri-State company by the Northwestern company will assure the Tri-State and Dakota companies of far greater financial resources and support than are now available to them."

The Minnesota Railroad & Warehouse Commission held a hearing on April 7.

What the Commissions Are Doing

Up-to-the-Minute News Regarding the Activities of State and Interstate Commissions, Courts and City Councils in Matters Concerning Telephone Companies—Summary of Commission Orders and Schedule of Telephone Hearings

Associated Telephone Utilities Co. in Receivership; Reorganization

The Associated Telephone Utilities Co., of New York, was placed in receivership on April 1 in Wilmington, Del., when the company failed to meet the $3,858,000 two-year 6 per cent secured gold notes, which fell due on that date.

The company admitted insolvency and consented to appointment of the receivers by Chancellor J. O. Wollcott of the Court of Chancery. William J. Wardall, president, and Christopher L. Ward, Jr., of Wilmington, were named receivers.

The Associated Telephone Utilities Co. is an Independent telephone holding company operating properties in 25 states. At the close of 1932 it reported assets with a book value of $116,000,000. Funded debt of the parent company is $28,500,000.

A committee headed by R. G. Page, vice-president of the Bankers Trust Co., New York, has been formed to plan reorganization of the Associated company. The other members are: Lawrence Bennett, of Milbank, Tweed, Hope & Webb, attorneys, New York; Robert B. Rugg, of Boston, Mass., president of the National Rockland Bank, and Cameron Winslow, investment secretary of the National Fire Insurance Co. of Hartford, Conn.

The committee was appointed at the request of the management and with the approval of the security houses which distributed the securities of the company. These are Bonbright & Co., Paine, Webber & Co. and Mitchum Tully & Co.

In a statement to holders of 15-year debentures, 6 per cent gold notes, both issues of preferred stock, convertible preferred stock and common stock, the committee says:

"The plan which our committee is formulating and expects to announce in the near future is being prepared with the view to according fair treatment to all classes of securities, and will call for deposits directly under the plan without the intervention of special committees for any class of the company's securities. Holders of these securities are advised to defer any action until the announcement of the plan of reorganization."

In connection with the appointment of the receivers, Wm. J. Wardall, president of the company, issued a statement addressed to security holders in which he pointed out that the company was advised such action would be taken and that "the board of directors met yesterday (March 31) and, with the desire to conserve the assets of the company so that a fair organization might take place, voted to consent to the appointment of such receiver."

There became due and payable April 1, principal and interest on the company's outstanding $3,858,000 6 per cent secured gold notes. The company on February 6 requested holders to grant a two-year extension of payment of principal. Approximately 20 per cent of the notes were not deposited under the extension agreement and the company was incapable of raising the sums required to pay the principal of non-deposited notes.

The Associated Telephone Utilities Co., it is stated, has no bank loans outstanding and none of the company's securities is pledged with the exception of the preferred stocks of certain operating companies pledged as collateral for the 6 per cent, secured gold notes. The company's outstanding securities consists of $24,801,800 of debentures; $3,858,000 secured gold notes; 46,290 shares of $7 prior preferred stock; 29,297 shares of $6 prior preferred stock; 49,000 shares of $6 convertible preferred stock and 619,448 shares of common stock.

Mr. Wardall, in his letter to security holders, said in part: "Due to the continuing and drastic decline in the operating revenues of the system, the adverse effect of the bank holiday and the necessity of conserving the cash resources of the subsidiary companies, the board of directors is now convinced that the income of the company as budgeted for the future will be substantially less than the interest

charges on the present funded debt of the company."

In a supplemental letter to holders of the company's 6 per cent secured notes who have deposited their holdings under the extension agreement, Mr. Wardall said that "under the terms of the deposit receipt held by you, you have the right to surrender the same to the depositary and to receive back your deposited notes.

"The company earnestly requests you, however, not to do so until the reorganization committee shall have had an opportunity to prepare its reorganization plan and submit the same to you for your approval, at which time you will be requested to deposit your deposit receipt with the reorganization committee for the purpose of carrying out the terms of such plan."

Bell Not Opposing Nebraska Commission's Investigation.

The Northwestern Bell Telephone Co. has notified the Nebraska State Railway Commission that it will not oppose the motion of the latter's attorney for a reopening of the case in which, back in 1925, it obtained an injunction against the commission interfering with the rates fixed by the court as just and reasonable. Commissioners have taken no action in the intervening years on the theory that they would be subject to contempt proceedings, but attorneys for the company say that it has not at any time been prevented from proposing a new schedule of rates.

The attorney for the commission, in order to play safe, has prepared for filing with the court a form of supplemental decree that will permit the reopening of the case in order to test the validity of the existing schedules.

"The company has never taken the position," says W. F. Cozad, general manager, "that the order of the federal court prevented the commission from investigating our rates or from prescribing new rates as the result of such an investigation. Of course, if any new schedule which the commission prescribes should be insufficient to provide a fair return on the value of the company's property, no doubt the courts would enjoin its enforcement. In enjoining the 1925 rate reduction the court definitely established the basis upon which the company's return should be computed.

"On that basis the company's net earnings on its investment has not in the intervening years equaled a fair return. Here are some of the figures reported to the commission and not challenged: 1922, 3.75 per cent; 1923, 5.15 per cent; 1924, 5.10 per cent; 1925, 5.94 per cent; 1926, 6.20 per cent; 1927, 6.54 per cent; 1928, 6.73 per cent; 1929, 6.49 per cent; 1930, 5.54 per cent; 1931, 3.52 per cent; 1933, estimated, 1.94 per cent.

Mr. Cozad says that in the face of this showing, any order of the commission reducing rates would be confiscatory and compel the company to appeal to the courts. "We have been forced," he said, "like all other industries to make drastic economies in operation, but these have failed to maintain net revenues at a standard recognized as just. These economies included reductions in salaries of all offices and employes, but in spite of that the rate of earned return has decreased."

Mr. Cozad said that the company welcomes full investigation of its earnings, and that its books and the cooperation of its staff will be at the command of the commission. He hoped that before starting a state-wide inventory and appraisal, which might ultimately cost telephone users and taxpayers several hundred thousand dollars, the commission would make a preliminary study of earnings as reported in detail monthly to the commission.

Commissioner Bollen, who has been forcing the issue, is relying upon the belief that the courts will base rates on the value of the service and not on the reasonableness of the return; and that it will not be difficult to prove that, because of the decreased number of stations operated, the value of the service to the remaining subscribers has deteriorated and this decrease should be represented in reduced rates. Commissioner Randall takes the position that until the courts have sustained that theory of rate making, the commission should follow the existing rules of law applicable to rate cases.

A postponement of two weeks has been secured by the Northwestern Bell Telephone Co. in the matter of the citation of the company to show cause why it should not reduce rural rates and rural switching charges for a year. The company made a showing that it had been impossible in the short time allowed in the original order to assemble the necessary data. Its representatives indicated that the company would resist any order to that effect.

The commission plans to hold a first hearing in Omaha and then at other points in northeastern Nebraska where complaints are numerous. Petitions have been circulated at various points in the state asking the commission to make a dollar rate for rural stations and 35 cents for switching, involving a number of other companies.

Meetings have been held in Northwestern Bell territory, largely attended by farmers, and 25 of these showed up at the commission rooms the day the hearing was first set.

Sale of Ward, Colo., Approved by Interstate Commission.

The acquisition by the Mountain States Telephone & Telegraph Co. of the telephone properties of George B. Holden, operating as the Ward Telephone Co. in Ward, Boulder county, Colorado, was approved by the Interstate Commerce Commission in an order issued on February 27. (*Please turn to page* 39.)

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Common-Sense Pole Specifications

Discussion of Pole Specifications from the Standpoint of Economy and Service—Unnecessary Restrictions—Heart Content and Checks—Specifications Drawn by Purchasers Should Conform to Some Nationally-Accepted Standard

By C. M. Tilley,
Superintendent, Texas Creosoting Co.

You may well ask: What are common-sense pole specifications?

To be common sense, they must have at least these characteristics:

1. They must be specific.
2. They must not be unnecessarily restrictive.
3. They should, so far as possible, conform to some nationally-accepted standard.

A specification must be specific. No one can buy intelligently, nor can the manufacturer supply intelligently, on one which is not specific.

This is probably one of the most difficult tasks with which the engineer is faced when making specification for timber products. They, unlike specifications for many of the more uniform materials, deal with a myriad of definitions and descriptions of defects and limits which are not found necessary in the specifications for the manufacture of the other classes of material which he uses.

In turn, to be intelligible, these must be couched in terms common to the timber industry. These terms have been built up through the ages by an industry that, in all probability, started with Adam. The average writer of specifications, when faced with these difficulties, is apt to fall back on generalities such as "No defect that will impair its strength or durability," which is a classic in timber specifications. With competent inspectors and reliable producers, very few complications have arisen from generalities of this nature; but with poor inspection and unreliable producers endless arguments have been unavoidable.

On the other hand, specifications should not be unnecessarily restrictive. Such characteristics will obviously limit the possible number of vendors, and in other ways tend to raise the price to the user. It is also readily apparent that it is not economical to use a higher grade of material than is necessary for the work which the structure is to perform.

One very good example of unnecessary restrictions, and one which has in the past been probably the most common, is specifying a considerable heart content in timbers which are to be treated.

Possibly this is a hold-over from the time before the practice of treating structural timbers became so universally standard as it is today, and the large heart content was specified on account of its resistance to decay. Such a clause loses its point when the sapwood is treated with a preservative, which makes its life several times the life of the untreated heartwood.

Or it may be that a large heartwood content is considered a source of strength, and that the timbers which have the larger heartwood content are stronger than those containing a greater percentage of sap wood. This is, of course, not a fact as has been proved by wood technicians in literally thousands of tests.

Catfaces in Pole on Left Would Not Pass Any Known Pole Specification Which Limited This Defect, Yet This Pole Has Been in Service for Ten Years and Is Apparently Good for a Number More—A Checked Pole, Such as Shown on the Right, Would Be Rejected at Sight by the Average Manufacturer or Pole Buyer. This Pole Is, However, Still Holding Its Place in Line.

The check is another item which seems to be badly misunderstood. Checks are the natural result of seasoning, and as such will occur either before or after the application of the specification clause; they will occur and have the same effect on the timber after it is put into the structure as they will if the seasoning is finished before erection. It is just a question as to whether the seasoning is done before or after treating or after erection.

This condition has never been taken into account in the average specification. If it were, there is a grave doubt that it would be possible to enforce a clause of this nature.

Of two poles which seem exactly alike, one will be rejected for excessive checking and the other accepted; the first pole may have seasoned faster than the second; but when the second is placed in the line and seasoning there is complete, it may check more than the one which was rejected, as the rejected pole may have reached its checking limit at the time of inspection or its character may be such that it naturally checks less than the pole which was accepted.

Both poles in all probability are serviceable. It is often assumed that poles which have checked before or during treatment are not serviceable. Inspectors and manufacturers class poles which have so checked as unserviceable, when an examination of poles in service will show that much greater checking after installation has in no way reduced their ability to give maximum service.

The "cat face" is another so-called defect which seems to be very much overrated. Many pole specifications carry this clause: "Poles having a cat face within two feet of the ground line, shall be rejected." If this is used for the purpose of eliminating breaks in the surface of the pole for fear of infection, it is unnecessary, as the cat face, in well-treated timber, is amply protected by the preservative. If a ring separation is present, the preservative injected under pressure will penetrate and protect whatever break in the continuity of the outer surface may be present.

If this prohibition is for the purpose of preventing weakness in this section, it is still in error as the critical point in the average pole is, theoretically, above the ground line.

The amount of crook in a pole is another feature which in many instances has too great restrictions placed on it. It must be confessed, however, that the producer has had as much to do with this condition as the consumer.

No one can blame the average user for wanting his lines to look as nicely as possible. Although no pole line is a thing of beauty to the artistically inclined, a

line of straight poles is more pleasing to the eye than a line of crooked ones. But the primary function of a pole is to hold up the wires which carry the circuits, at the smallest possible cost; and an extremely crooked pole will, all other factors being equal, do this as well as one which is as straight as a pencil. Again, poles which on skids appear crooked viewed from one end, make a line of apparently straight poles when erected.

Some pole producers capitalize this pardonable desire for better appearance, promising straighter poles at the same price as the poles of their competitor. The competitor, in turn, meets this unnecessary refinement and begins to furnish straighter poles, until the quality of the poles from the viewpoint of straightness is on the level with the poles of the first producer.

Everybody is happy until the consumer wakes up one morning and finds that *all pole prices* have advanced, due to the increased cost of producing the more pleasing appearing pole. This cycle is repeated until the cost of pole lines, driven on by the desire of the user for better and better looking poles and the excess of competitive selling effort, is more than is justified by this artistic urge.

Insofar as may be possible, specifications should conform to some nationally-accepted standard covering poles. Specifications which meet with such requirements are quite apt to prove to be common-sense specifications and to lend themselves to common-sense purchasing.

The telephone industry has been particularly fortunate in this respect, for the American Telephone & Telegraph Co. has for years done a great deal of research work on poles and has developed a specification for them that is extremely practical. Lately another pole specification has been worked up by a national association which bids fair to become universally accepted by all pole users. This specification has been developed by the American Standards Association and is already in use by a number of the largest pole-users.

There is not the slightest doubt that in numerous instances specifications may be created which, if used by the buyer, will enable him to check up exactly on the qualities of deliveries. It is equally true that in 99 per cent of the cases, the injury which the buyer might suffer from imposition on the part of the seller, would be less than the cost of using a specification of this type. It is obvious that it would be bad business to use such a specification.

The best practice for the buyer would be to place his faith in some reliable concern with a reputation and good will at stake, for so long as human nature remains as it is, a specification will always be a challenge: a challenge to the reputable manufacturer to see how well he can meet it; and to the untrustworthy manufacturer to evade its requirements if possible.

Changes in High Officials of Pennsylvania Bell Company.

Leonard H. Kinnard, who rose from clerk to president of the Bell Telephone Co. of Pennsylvania, was elected chairman of its board of directors on March 30. To succeed him as president the directors chose Philip C. Staples, vice-president in charge of operations. Mr. Staples started out as a salesman.

Similarly, a man who started out carrying a repair kit, was selected to replace Mr. Staples. He is William H. Harrison, plant engineer of the American Telephone & Telegraph Co.

Mr. Kinnard started as a "temporary" employe in Harrisburg, Pa., and later was manager of the Harrisburg, Carlisle and Lancaster offices. He has been president of the company for 14 years. Mr. Staples went to Pennsylvania from Baltimore, Md.

All three men were advanced to corresponding positions in the Diamond State Telephone Co. of Delaware.

Commercial Telephone Service Links U. S. with Philippines.

Commercial telephone service between the United States and its most distant dependency, the Philippine Islands, opened on Thursday, March 30, through short-wave radio-telephone stations near San Francisco and Manila. Conversations between government officials at Washington and at Manila formally inaugurated the new voice channel. Words spoken in Washington at 6:30 on Thursday evening reached Manila at 7:30 o'clock Friday morning due to the 13-hour difference in time between the islands and the national capital. Actually the voice impulses, crossing the international date line, complete their 10,000 mile trip in less than a second.

The American Telephone & Telegraph Co. has arranged with the Philippine Long Distance Telephone Co. for interconnecting the wire lines of the two systems by a 7,000 mile short-wave channel linking the Bell System stations in California and stations of the Radio Corp. of America in the Philippines. The opening marks the second step in the expansion of Bell System telephone service across the Pacific. Connection with the Hawaiian Islands through the California stations was made late in 1931. Tests are already in progress looking to the eventual establishment of service with Japan and other Far East points.

Revenue Accounting Office Counts Toll Tickets by Weighing Them.

After exhaustive studies to insure the efficiency of the device, the revenue accounting office of the New England Telephone & Telegraph Co. at Springfield, Mass., has installed an accounting scale by which the count of the number of toll tickets received in the office is obtained.

For statistical purposes, it is necessary to obtain the number of tickets made on calls originating in various central offices throughout the territory of the New England company, says an article in Telephone Topics. Heretofore, this count was made by hand, by a group of clerks in the office, as the tickets were received. The count was subject, of course, to such discrepancies as may result from human handling and computations.

In using the accounting scale, the tickets are stripped of their wrappings and placed on the weighing platform of the scale. The indicator shows the scaled number of tickets on the platform. These figures are recorded on the statistical records.

The operations of counting tickets by weight on the accounting scale are comparatively simple. The only requirement to secure an accurate count is that the tickets must be of uniform size and texture.

A specified number of tickets are placed in the unit or trip pan, located on the left of the machine, to set the indicator in the proper position. The tickets to be counted are placed on the weighing platform and when the scales "balance," the indicator will show on the chart the number of tickets on the platform.

This has been found to be an efficient and economical method of obtaining the office's record.

Judge Orders Telephone Put Back in Court Clerk's Office.

The telephone in the Davison county clerk of court's office in Mitchell, S. D., is again in service.

Removed February 1 at the request of the county commissioners, a court order from Judge R. C. Bakewell of the fourth judicial circuit, over-rode the commissioners, and it was replaced.

Ruling that the loss of the services of the telephone in the clerk's office would seriously impair and obstruct the transactions of the court, Judge Bakewell ordered the sheriff to have it connected.

In his order the circuit judge stated that the telephone had been removed from the clerk's office after 20 years of use and without the sanction of the court.

Judge Bakewell requested that the sheriff have the telephone returned and that he report a bill of the costs to the court. He also ordered the county auditor to issue warrants paying for the installation and the regular rental charges.

Prices in the Metal Markets.

New York, April 3: Copper—Quiet. Electrolytic—Spot and future, 5c. Tin—Steadier; spot and nearby, $24.70; future, $24.75. Iron—Barely steady; No. 2, f. o. b. eastern Pennsylvania, $13.00@13.50; Buffalo, $14.00; Alabama, $10.00@11.00. Lead—Steady; spot, New York, 3.00c; East St. Louis, 2.87c. Zinc—Firmer; East St. Louis, spot and future, 3.00c.

"Telephony's" Engineering Data.
By B. C. Burden.

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No. 2-A, Page 1.

Drop-Wiring Methods.

The proper installation of drop wire requires a knowledge of the materials which should be available for doing the work, standard methods of supporting and "tying-in" wires, and a good sense of construction values in laying out each drop-wiring run.

In the September 13, 1930, and the July 4, 1931, issues of Telephony's Engineering Data Sheets some of the general features of drop wire and drop wire construction were discussed.

This data sheet discusses in more detail such features as drop-wire ties, splicing, drop-wire runs, etc. The methods recommended are those which years of experience of the larger telephone companies have indicated as being best. While every lineman has "pet" notions regarding methods to be employed in drop-wire construction, it is obviously better to follow a standard practice.

Two Types of Drop Wire.

Subscribers' drop wire is available in two basic types: Twisted pair (known as P. O. D.) and parallel.

Twisted-pair drop wire has been the standard with Independent telephone companies for years, and is still a favorite. The drop wire of this type in most common use consists of No. 17 B. & S. (.045") copper-steel or bronze conductors insulated with a rubber compound and covered with a cotton yarn braid. The braid is saturated with an asphaltic compound and a finishing wax. In some cases fine mica is applied over the finishing wax so as to give a smooth, non-adherent surface. Two conductors of this type are twisted together so that the twists are from five to six inches in length.

Parallel drop wire consists of two rubber insulated No. 17 B. & S. (.045") copper-steel or bronze conductors placed under a single cotton braid, the conductors lying parallel with each other with no twist. The braid is a cotton yarn saturated with an asphaltic compound, with finishing waxes and mica applied to give a smooth, non-adherent surface.

Parallel drop wire is standard with the Bell System companies and with some of the larger Independent companies.

Some of the advantages advanced for parallel drop wire are:

1. Presents a neat appearance due to its small size.
2. There is less tendency for parallel drop wire to load up with ice or snow.
3. Less material is required in the manufacture of parallel wire, hence ultimate cost should be less.
4. Parallel wire permits the use of special drop wire clips which eliminate the necessity for dead-end ties. Note: Drop wire clips can also be used with twisted pair but are better adapted to parallel wire.

Parallel wire was first introduced on a field trial basis about 1923.

These sheets show ties for both types of drop wire.

"Telephony's" Engineering Data.
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Drop-Wire Ties.

It is quite important that drop-wire ties be properly made, otherwise the drop may come loose or the tie may be made in such a way that the insulation of the drop cuts through, resulting in a short-circuited line.

Several years ago a new device, known as a drop-wire clamp, was introduced to the telephone field. This device greatly simplified drop installation work by eliminating the need for ties on dead-end pulls.

Fig. 1 illustrates how the drop-wire clamps are used on either twisted pair or parallel drop wire. The clamp consists of two pieces, one a tapered V-shaped sleeve, and the other a wedge to which is attached a wire with an eye on the end. The drop wire is slipped through the V-shaped piece. The wedge is then pulled in place, and the eye hooked over a special screw which is driven into the pole or cross-arm. The wedge forces the drop wire tightly against the upper part of the V-shaped piece, preventing its slipping.

Extensive field trials of drop-wire clamps indicate they can be expected to give less trouble than ties, hence this method of fastening drops is now standard with the larger companies. Its advantages are: Neat appearance, can be quickly applied, permits slack adjustment at any time, and its use results in fewer broken wires at insulator supports.

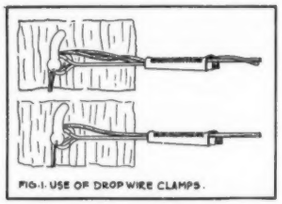

FIG. 1. USE OF DROP WIRE CLAMPS.

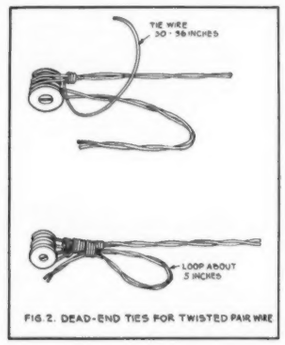

FIG. 2. DEAD-END TIES FOR TWISTED PAIR WIRE

In using drop-wire clips on twisted-pair wire, the two wires should be untwisted and laid parallel where they pass through the clamp.

For those who still prefer the hand tie to the drop-wire clamp, the standard ties, shown in the illustrations, are recommended. Fig. 2 shows the dead-end tie for twisted-pair drop wire, and Fig. 3 that for parallel wire. The tie wire for both twisted pair and parallel should be a 30 to 36-inch length of twisted-pair wire. The parallel drop wire will require a slightly larger length of tie wire than the twisted pair.

The loop should be about three inches in length, and serves the double purpose of permitting the wire to be slacked off at some future time and reducing the tendency of the drop

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to go open due to its being pulled sharply away from the tie.

Fig. 4 illustrates the straight and corner ties for twisted-pair drop, and Fig. 5 for parallel drop.

Split knobs are available for use in supporting straight runs. With these, no tie is required, the drop wire being held between the two halves of the knob. Their use is recommended because of the neater appearance which they offer.

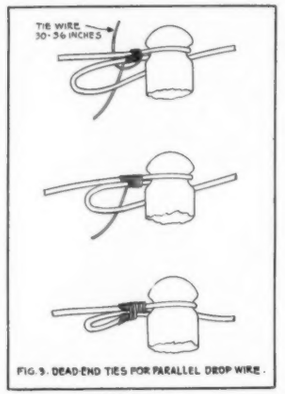

FIG. 3. DEAD-END TIES FOR PARALLEL DROP WIRE.

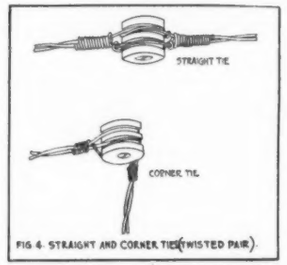

FIG. 4. STRAIGHT AND CORNER TIES (TWISTED PAIR).

Drop-Wire Splicing.

An important item in drop-wire installation is splicing. Where possible it is desirable to run drop wire in a continuous unspliced length from pole to house; however, it is often necessary to splice drops which have been broken or which have been re-used.

Drop wires should always be spliced, using small (.045") double-tube copper sleeves. These sleeves insure both mechanical strength, and good electrical connection.

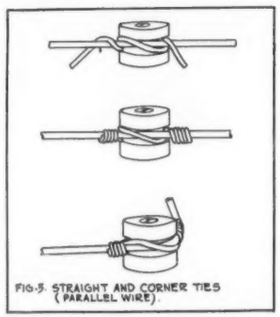

FIG. 5. STRAIGHT AND CORNER TIES (PARALLEL WIRE).

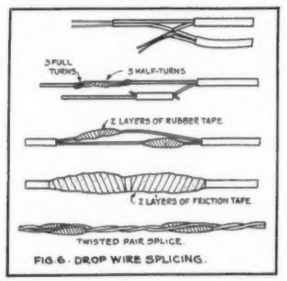

FIG. 6. DROP WIRE SPLICING.

Fig. 6 illustrates the proper method of splicing drop wires. The same method is used for twisted pair and parallel wire, with the exception that with twisted pair the completed splice is taped separately as shown. The sleeves should be given five half turns, and the ends of the wire three complete turns around the wire.

WHAT THE COURTS AND COMMISSIONS ARE DOING.

(*Continued from page 35.*)

The Ward company, through its Ward exchange, serves approximately 19 subscriber stations, most of which are connected with rural lines. The exchange is connected with the toll lines of the Mountain States company and no change will be made in these connections. There is no duplication of plant or service.

Ward is a tourist and mining town located 50 miles northwest of Denver and 25 miles south of Estes Park. The area north of Ward is a resort region which is developing quite rapidly. The owners of the lodges and summer homes, who are being served from the Ward exchange, are anxious to secure better service and other persons have applied for service.

The Ward company is unable to finance the improvements, extensions, and repairs necessary to furnish proper service to this community. It appears that the proposed acquisition will improve both the local and toll facilities.

On December 29, 1932, the Mountain States company contracted to purchase all the telephone properties of the Ward company, free from all liens or encumbrances, for $2,500. The reproduction cost new of the properties, as estimated by an engineer of the Mountain States company, is $4,290.51, and less depreciation $2,612.61.

Upon acquiring the properties the Mountain States company plans to rehabilitate the exchange at Ward and to replace its own toll facilities between Boulder and Ward, as a part of a general plan for the development of its toll facilities in the territory north of Ward. These improvements will require an expenditure of about $25,000.

Completion of this program will involve retirement from service of practically all of the present plant at Ward, which is desirable in order to afford proper telephone service in this community. In the year ended October 31, 1932, operating revenues and operating expenses of the vendor company were $760.20 and $930.35, respectively.

Salisbury Center, N. Y., Properties Sold to New York Bell.

On February 25, the Interstate Commerce Commission issued an order approving the acquisition by the New York Telephone Co. of the properties of the Salisbury Center Telephone Co., Inc., which operates in Salisbury Center, N. Y., serving about 80 subscriber stations in portions of Herkimer, Fulton and Hamilton counties. It owns 1.5 miles of toll pole lines and 6.5 miles of circuit wire mileage.

The territory is a sparsely-settled region within which no considerable demand for telephone service can be anticipated. In the southern part the inhabitants are engaged in farming and dairying. The Salisbury company is unable and unwilling to finance the rehabilitation of its properties, which is now necessary because of the condition of the plant and the demands for better service.

By a contract made August 27, 1932, the New York company agrees to purchase the physical and tangible properties of the Salisbury company, except corporate and local franchises, leases, cash, and receivables, free from all liens and encumbrances, for $5,000, plus the value at the time of the sale of the net additions, if any, made by the Salisbury company, with the consent of the New York company, subsequent to September 24, 1931.

An appraisal made by an engineer of the New York company, as of September 24, 1931, finds the reproduction cost new of the properties to be $10,197, and less depreciation $3,489. The value of the property to be retired from service is $1,479, and the cost of removing the retired property is expected to exceed its salvage value by $1,492.

The additions to fixed capital assets since the foregoing valuation date is about $200. The New York company estimates that an expenditure of about $12,000 will be necessary to rehabilitate the plant to properly care for the existing development and future growth. In 1931, operating revenues and operating expenses were $3,011.73 and $3,195.85, respectively.

Telephone Company Held Liable in Unusual Accident.

The American Telephone & Telegraph Co. was held liable by the Nebraska Supreme Court recently in a case of unusual character.

A cable repair gang had stopped its truck on the bridge across the Mississippi River at Omaha to do some work on long distance wires. While the truck was parked, an automobile came along, and its driver, the morning being misty and foggy, ran into the truck, the two machines becoming entangled.

A telephone company employe rushed to signal another oncoming car, and a truck coming from the opposite direction rammed the car that was thus halted, the driver having to choose between hitting it or the telephone employe.

The state supreme court holds that the act of the telephone company in halting its truck on the bridge was the proximate cause of the accident, and awarded damages to the owner of the car struck by the truck.

Summary of Commission Rulings and Schedule of Hearings.

INTERSTATE COMMERCE COMMISSION.

April 13: Hearing in Washington, D. C., on complaints of state commissions relative to the revised accounting system of the Interstate commission.

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WESTERN RAILROAD SUPPLY COMPANY

2360 S. Ashland Avenue
CHICAGO, ILLINOIS

This hearing was ordered to afford an opportunity to representatives of the state commissions, telephone companies and others having a direct interest in the accounts of telephone companies, to present testimony regarding any particulars wherein it is contended that the rules in the uniform system of accounts for telephone companies, first revised issue, effective January 1, 1933, are defective.

ILLINOIS.

April 5: Hearing in Springfield before Commissioner Gilbert on joint application of the Dahlgren Telephone Co. for permission to purchase and of the Tri-County Telephone Co. to sell the Belle Rive exchange, a division of Tri-county company.

April 5.: Hearing in Springfield before Commissioner Byrne on complaint of the Farmers Fountain Telephone Co. against the Harrison Telephone Co. as to delivery of public toll service to the Maeystown Telephone Co., not incorporated, over a rural subscriber's line owned by Harrisonville Telephone Co. extending from the Waterloo exchange.

INDIANA.

March 22: Permission granted to the West Point Telephone Co. to substitute a temporary rate schedule, reducing present rates one-third for a period of one year, effective April 1.

MINNESOTA.

March 28: In regard to the investigation on motion of the commission of the extra charge for hand-set telephones by all telephone companies operating in the state of Minnesota; its order of March 2 discontinuing the 25-cent monthly charge on hand-sets, effective April 1, where such charge had been assessed for a period of 12 months or longer, ordered stayed until further order of the commission.

An appeal of the Northwestern Bell Telephone Co. and the Tri-State Telephone & Telegraph Co. from the order is now pending in the Hennepin County District Court.

April 7: Hearing on joint application of the Tri-State Consolidated Telephone Co. and the Northwestern Bell Telephone Co. for consent to the transfer of certain stock of the Tri-State Telephone & Telegraph Co.

MISSOURI.

March 29: In the matter of the application of the Indiana Central Telephone Co. to acquire and hold more than 10 per cent of the capital stock of the Central Missouri Telephone Co.; authority granted February 27, 1930, to acquire and hold all of the issued and outstanding shares of capital stock except directors' qualifying shares issued the Central Missouri Telephone Co. cancelled and set aside without prejudice.

March 29: Application of the Andrew County Mutual Telephone Co. for authority to render service to its subscribers at Rea and Flagg Springs, through its exchange at Whitesville; ordered that commission's order issued September 26, 1932, denying the application be set aside. Applicant authorized to close these exchanges and serve subscribers through Whitesville.

NEW YORK.

April 1: The Dunkirk & Fredonia Telephone Co. filed revisions to its telephone tariff which reduce charges for moving stations, changing the type of station equipment and making service connections.

The charge for changing location of telephones is reduced from $3.00 to $2.00. The charge for changing the type or style of equipment is reduced from $3.00 to $1.00. Service connection charges are reduced from $3.50 to $3.00 where instruments are not in place; from $3.50 to $2.00 for extensions; from $3.00 to $1.00 where instruments are taken over by new applicant; and from $1.50 to $1.00 where instruments are taken over by new applicant with lapse in service.

April 1: The New York Telephone Co. filed a new local telephone schedule which extends the base rate area of Syracuse to Onondaga Hill and the territory adjacent to West Genesee Turnpike near the municipal limits of the city of Syracuse.

The monthly rates for this area are to be the same as the present rates in Syracuse and the mileage charge now existing is eliminated. This mileage charge is 40 cents for two-party lines and 60 cents for individual line service per one-quarter mile or less of airline measurement from base rate area.

This change in the boundary of the Syracuse rate area becomes effective April 11, 1933, and affects 175 subscribers involving an estimated loss of $1,992 in the annual revenue of the company. Most of the reduction in revenue occurs from the elimination of mileage charges to 146 subscribers who take service under the base rate area rates with the addition of mileage charge.

April 7: Hearing in New York City in commission's own investigation of the rules, etc., of the New York Telephone Co., particularly with regard to its billing practices in New York City; and as to the relationship between the New York Telephone Co. and Reuben H. Donnelley Corp., publisher of the "Red Book."

OHIO.

March 22: Authority granted the Newark Telephone Co. to establish two new types of service for small business concerns and the unemployed.

A four-party line, with unlimited calls at five cents each, were prescribed for the business firms. The unemployment service would be a 10-party line with calls limited to five minutes each at $1.75 a month.

OKLAHOMA.

March 24: General investigation ordered of telephone rates at Muskogee with complete inventory, appraisal and audit of all property used by the Southwestern Bell Telephone Co. at Muskogee, order for the investigation growing out of the application of the citizens of Muskogee for investigation of the zone charges now effective in the telephone company's rate schedule applicable to Muskogee.

April 18: Hearing on complaint of residents of Guyman against the rates of the Western Telephone Corp.

PENNSYLVANIA.

March 25: Petition filed by the United Telephone Co. of Pennsylvania for permission to merge 12 companies, which operate in adjacent territories, into the United Company. The companies included are:

The Perry County Telephone & Telegraph Co., Duncannon; Allensville Telephone Co., Allensville; Farmers' Telephone Co., Belleville; Bald Eagle Telephone Co., Lock Haven; Bedford-Fulton Telephone Co,. Everett; Claar Telephone Co., Bedford; Milroy & Reedsville Telephone Co., Reedsville; Morrison's Cove Telephone Co., Martinsburg; Nittany Telephone Co., Lock Haven; Pfoutzes Valley Telephone Co., Millerstown; and the Woodcock Valley Telephone Co., Marklesburg.

SOUTH CAROLINA.

March 18: Preliminary steps towards investigating telephone rates charged by the Greenwood Telephone Co. were taken in a resolution adopted by the commission.

The resolution requests the telephone company to have an appraisal of its properties made by reputable engineers and an audit of its books made by certified public accountants, the information thus obtained to be filed with the commission for checking by its representatives with a view to ordering a hearing to determine fair and reasonable telephone rates to be charged by the telephone company.

The action by the commission was the result of requests in several petitions by citizens of Greenwood that the commission reduce rates of the local company.

WISCONSIN.

April 6: Hearing in La Crosse on petition of the city of La Crosse for reductions in rates of the La Crosse Telephone Corp. Hearing was previously scheduled for April 5.

April 10: Hearing to be held in the Milwaukee courthouse in the Wisconsin Telephone Co. case as to whether the company has placed too large investment in plant.

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